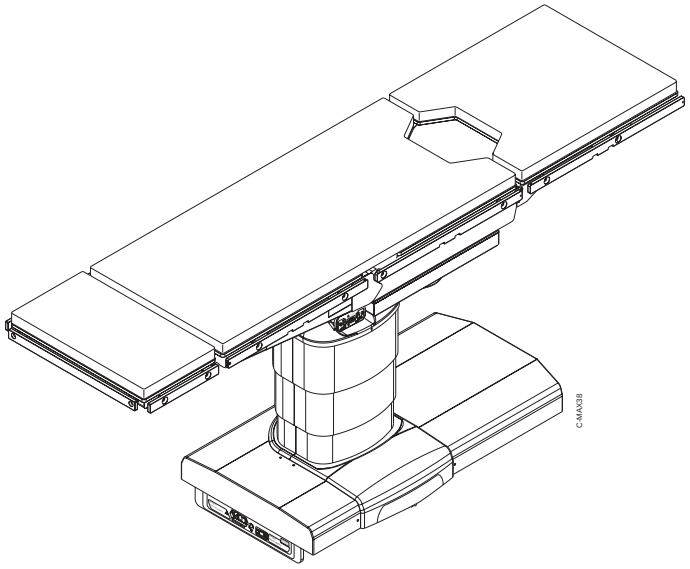

Operating table

Technical Manual

C-MAX/NTR/04/01 Edition 01B Ref. 022720201

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Dear customer,

Thank you for choosing the C-MAX operating table, newly proposed by **FHSurgical** to fully meet your needs.

Please read the instructions carefully to ensure optimum efficiency and safety when using the C-MAX operating table.

Philippe DAURY, President.

Designer and Manufacturer :

FHSurgical
645, rue des Châtaigniers, BAT 405 - B2,
F 45770 **SARAN**

QUALITY REQUIREMENTS

Company certifiation and applicable standards

The **FHSurgical** quality system is certified :
ISO 9001 (2000)
ISO 13488 (2001)
Certificate N° 1605/9001/13488/1
by the G-MED (Medical Device Assessment Body) for the manufacturing, sales, installation and after sales service for operating tables, table tops, trolleys for transfert system, and for their extensions and accesories.

Note : the ISO 13488 is the international standart dedicated to the medical devices manufacturers.

This table is designed in compliance with international standards **IEC 601-1 (EN 60-601-1)** electromedical devices, Part 1: general safety rules and IEC 601-2-46 “electromedical devices, Part 2 : specific safety rules applicable to operating tables”, and **IEC 601-1-2 (EN 60-601-1-2)** concerning electromagnetic interference.

CE Marking

The CE marking applied to the table is covered by a statement issued by **FHSurgical** , and a registration with the l’AFSSAPS (French Agency governing the Sanitary Safety of Health Products).

Product **UL2601 certification** has been delivered by Underwriters Laboratory, to **FHSurgical** *.
FILE : N° E237575

* US model

GUARANTEE

FHSurgical warrants the equipment against all defects of materials or manufacture for 12 months after delivery. The warranty covers only equipment supplied by **FHSurgical**.
It is limited to replacement of parts acknow-ledged to be defective. The labour, travel, living and insurance expenses of the crew replacing parts acknowledged to be defective are incumbent on the customer.

Title to replaced parts reverts to **FHSurgical** and they must be returned to it within one month of replacement; otherwise **FHSurgical** reserves the right to bill the value of the replaced part.

Warranty repairs and deplacements do not extend the initial warranty period.

This guarantee does not cover the normal wear and tear of parts, nor does it apply to consumables (in particular bulbs, fuses, neon tubes, UV tubes, semi-conductors, valves and diodes, rubber seals, mattress, cushions, etc.).
In order to benefit from the terms of this gua-rantee, the Purchaser must inform us of any defect by letter or by telex followed by letter of confirmation within three days of discovering the defect.
The Buyer must submit to **FHSurgical** all evidence that the defect is incumbent on **FHSurgical** and afford **FHSurgical** every facility to investigate the same.

The customer may buy spare parts simulta-neously with the equipment.

FHSurgical may use the Buyer's spare parts subject to replacement thereof.

On request, **FHSurgical** will supply the principal electrical diagrams and lists of parts to duly accredited technicians.

The warranty determines if the supplies are altered or repaired by the Buyer or other par-ties without **FHSurgical**'s prior written consent.
No damages are recoverable under this warranty, which is personal to the Buyer and determines forthwith if it disposes of the equipment.

The warranty does not cover:

• incidents caused by fortuitous events or force majeure as described in article X of the general conditions of sales,
• repair or replacement required by normal wear of the equipment,
• damage or accidents due to the customer's act such as negligence, lack of supervision, faulty connection and use/procedures, disre-gard of the operating or maintenance instructions or improper use due inter alia to overload of any kind.

1 - Safety Instructions :

1.1 Summary of warnings :

During table top operation, several possible pinch points are generated and could result in medical staff or patient injuries. Cutting or crushing injury may occur if any part of a patient or staff member is caught in a pinch point. People involved must be aware of these risks and review drawings of FIG 1.1, 1.2. (pages 11-12)

If an antistatic path is necessary, we recommend that you only use recommended antistatic pads, specifically designed for this product and on which the patient must be in direct contact.
The operating table must be set on an antistatic floor or connected to an equalization device equipotential connector (page 16).

When using high frequency surgical equipment such as defibrillators or defibrillator-monitors, carefully follow the manufacturer's instructions (page 16).

The table is earthed when table is connected to mains by power cord with earth (page 16).

Where the integrity of the external Protective Earth Conductor arrangement is in doubt, equipment shall be operated from its Internal Electrical Power Source (page 16).

Table must be equipped with 2 flame retardant lead sealed batteries 12V, available through the FHSurgical network (page 16).

Do not remove leg plate while patient is not correctly positioned .
Patient's torso and buttocks must be firmly held in position by the operating table seat plate and his legs supported by additional leg supports correctly attached to seat plate side rails (refer to leg support's instructions for use).

When leg section is not correctly secured, corresponding LCD angle value does not appear.

Do not use the table in the presence of flammable anesthetics.

Prior to all surgical procedures, ensure that battery charge is sufficient for anticipated duration.

Ensure socket cap covers the socket properly.

The plug is equipped with a safety lock feature : do not pull on hand control cord to disconnect it from the table as this will damage it.

Only FHSurgical representatives are authorised to use this socket. Otherwise, FHSurgical cannot be held responsible and guarantee does not apply.

If the hand control unit and the foot pedal used at the same time, the hand control unit has priority.

Hand control "OFF" key also switches off the foot control.

The values in the LCD display are given as guidelines. Their accuracy may vary according to environmental conditions (altitude, hydrometry, temperature etc.).
Take care to check patient positioning visually.

Table top movements can not be operated when table is unlocked.
Lock table before positioning patient on the table and before pressing any table top movement key.

In case of table displacement, with patient on it, table top must be in a flat position, centered in relation to table column.
Prior to this, the user will have to remove any obstacles that might stand in the way and move table with care.

- **Since table is locked, ensure table is stable according floor flatness. Relocate table if required.**
- **The information displayed on LCD are not reversed.**
- **When table is turned off, table memorizes orientation status.**
  Before any new positioning, ensure table is correctly configured in relation to patient orientation function.
- **When REVERSE ORIENTATION is activated, level function does not include back section for compliance with anesthesia procedure.**
- **In reverse configuration, flex and reflex function are not available for patient safety reasons. «REV. ORIENT.» appears at the LCD message window.**
- **Caution : These ALS suggested alternative table movements do not take into account the type of surgery being conducted or the environment (e.g. : other equipment closeby) and might not be compatible with the surgical procedure in process.**
  To avoid any risk and before carrying out the suggested alternative, the user should evaluate feasibility.
- **Use exclusively recommended FUSION pads.**
- **Ensure that it has been correctly secured, by pulling lightly double top up.**
- **Do not exceed 600 lbs patient weight using standard positions specified.**
- **If a heavy patient (500-600 lbs) is placed on the tabletop in full slide towards patient head end, caution should be used to avoid bumping the table, which can cause the table to tip. If chest compressions or other forces need to be applied on a 500-600 lbs patient, the patient should be centered over the column.**
- **The positionings described below are given as an example only. They do not replace instructions given by the health care professionals in charge of the patient to prevent any patient injury.**
- **Accessories here-below are not systematically representated.**
- **Possible patient or user injury may result from using accessories manufactured and sold by other companies.**
- **When override hand control is in use, primary hand control automatically shuts off, after 1 second.**
- **In override mode, no sensor is available (A.L.S. off) : when articulating table top, take care to avoid section collision with table top (e.g. : when sliding), with table base or with the floor.**
- **In override mode, lock table before articulating table top.**
- **There is no reverse orientation key in override mode. Controls are configured in normal orientation.**
  When table is turned to back up mode, table does not memorise orientation status.
  Before articulating table top, take into account patient orientation. If patient is in Reversed Orientation, change TREND selection to REV. TREND., BACK SECTION to LEG SECTION, LEFT TILT to RIGHT TILT, and vice versa.
- **Take care not to jam cable when replacing drawer.**
- **Before any cleaning operation :**
  Switch off the table
  Disconnect the control unit
  Fit watertight covers on each connector.
- **Do not immerse hand control unit in liquid.**
- **Do not spray solutions in direction of connectors.**
- **Do not forget to clean wheels and floor blocks.**
- **Do not use any oxidizing products with chloric derivative base such as bleach, or oxygenic derivatives such as peracetic acid.**

1.2 Pinch points :

During table top operation, several possible pinch points are generated and could result in medical staff or patient injuries.
People involved must be aware of these risks and review drawings of FIG 1.1 and 1.2.

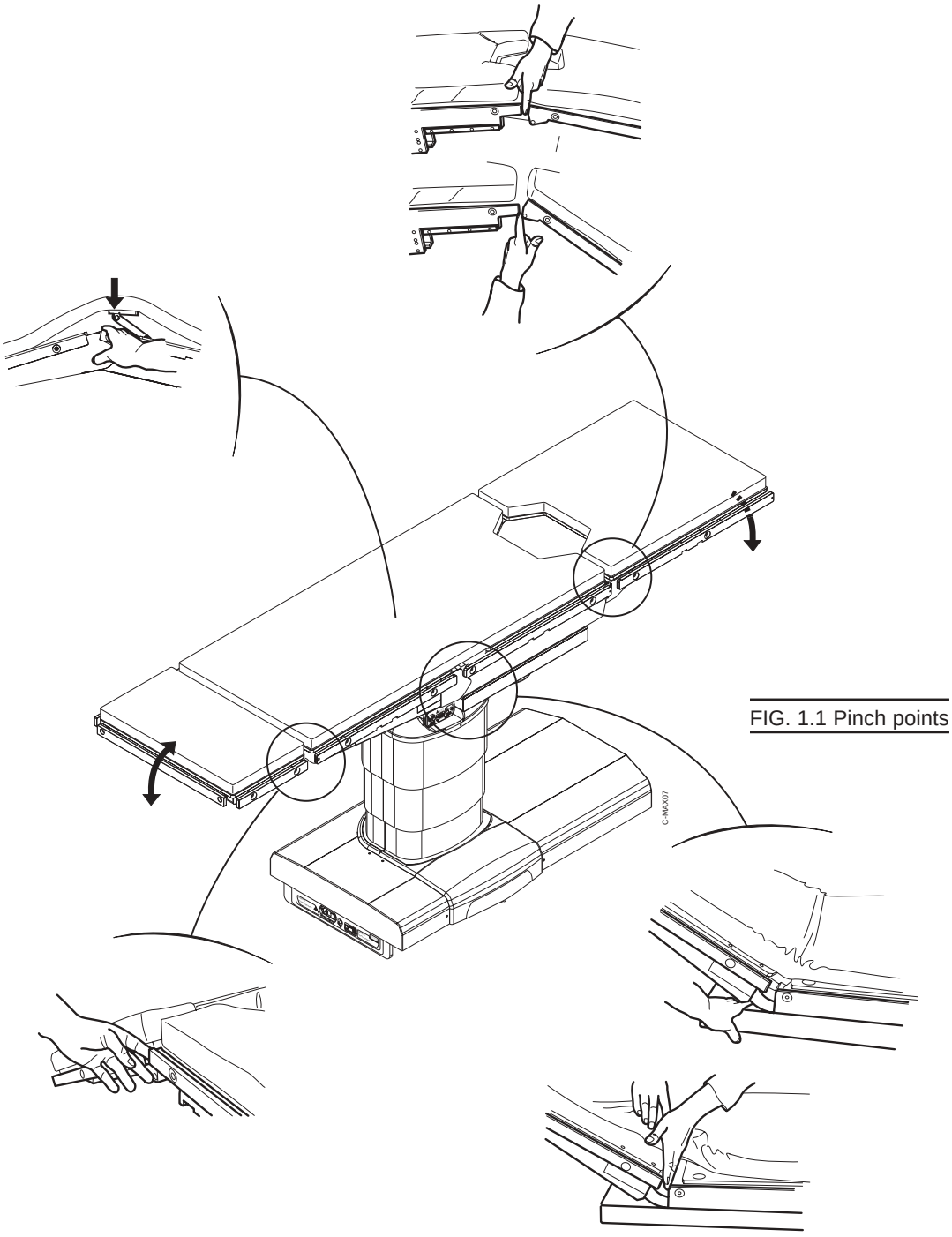
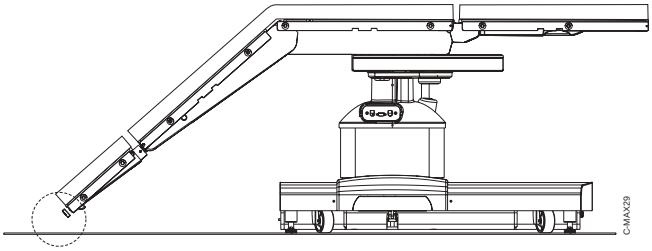
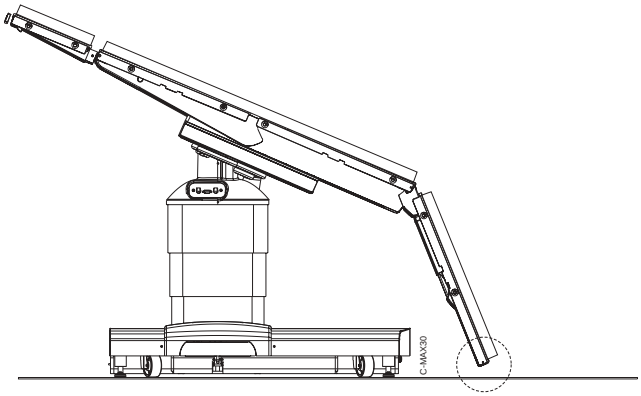
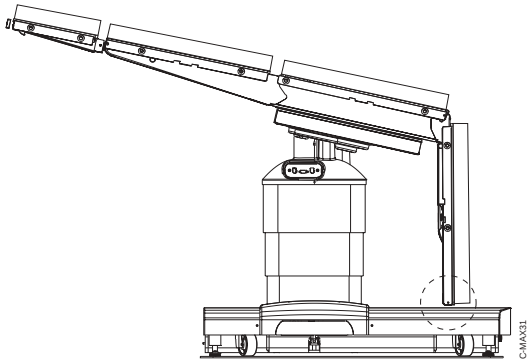


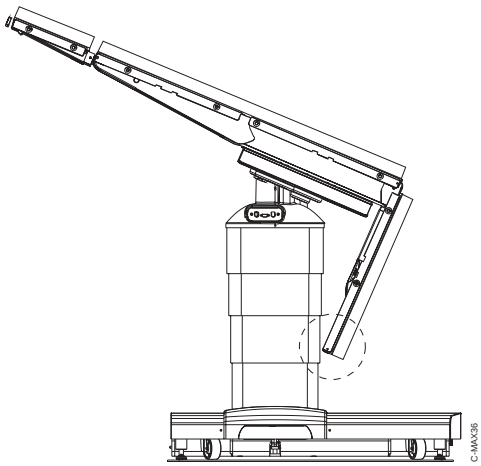
FIG. 1.1 Pinch points

FIG. 1.2 Pinch points

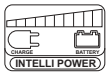








1.3 Symbols :

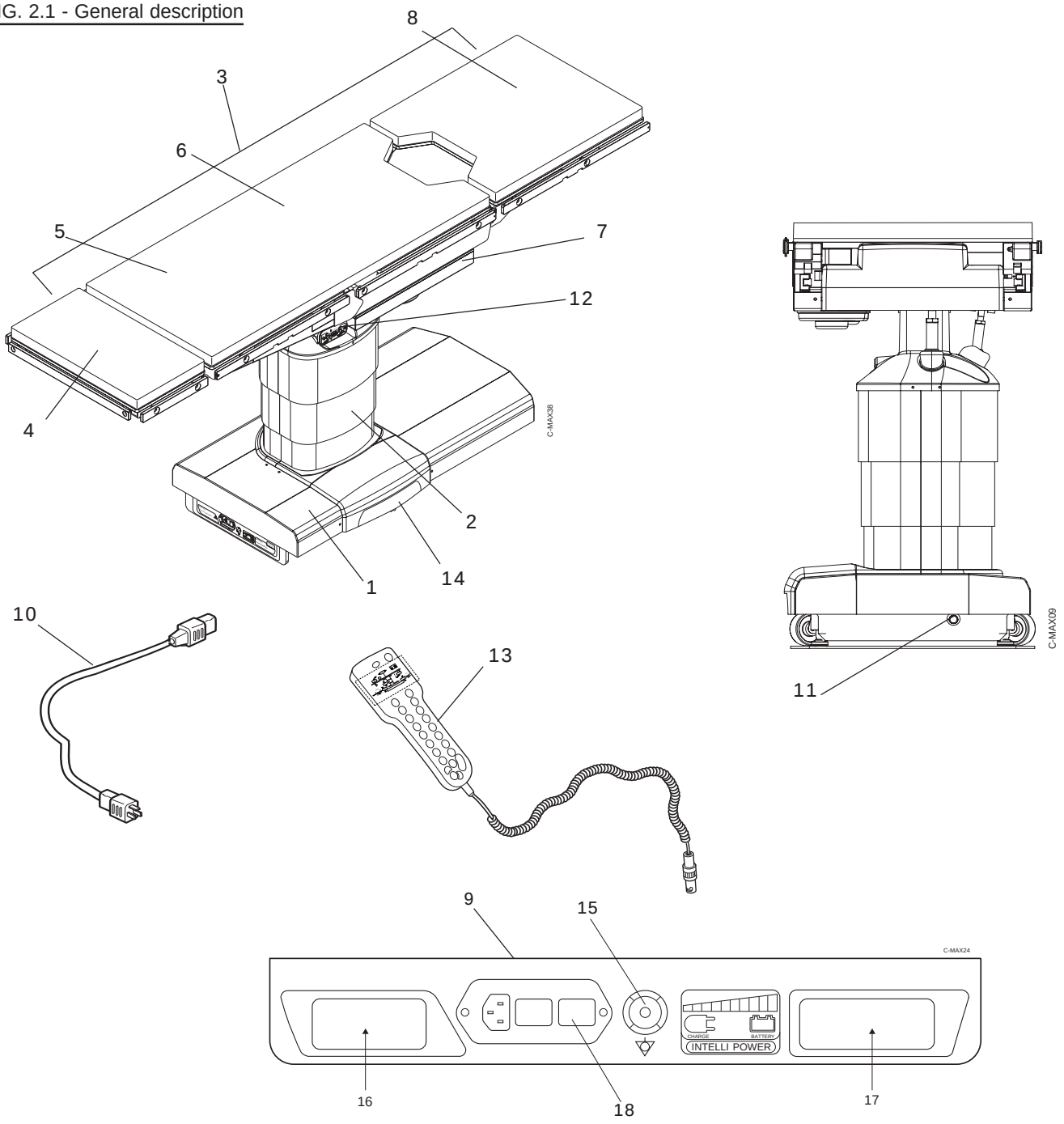
	Label : Warning : consult the accompanying documents		Height up (page 20)
IPX 4	Label : Protected against water splashes		Height down (page 22)
	Label : Type B appliance : Protection against electric shocks		Trendelenburg
	Manual : Remarks are aimed at attracting the reader's attention to particular points		Reverse trendelenburg
	Manual : Not allowed		Tilt left
	Power panel : Equipotentiality plug		Tilt right
	Power panel : Battery charge/discharge status (page 15)		Back up
	Power panel : Table works on batteries		Back down (page 20)
	Power panel : Table works on mains (page 24)		Leg up
0 / I	Power panel : Mains off / Mains on		Leg down
	Stop function		Slide head (page 20)
	Auto limit sensors		Slide foot (page 21)
	Lock table on floor		Kidney up
	Floor lock		Kidney down
	Unlock table		Flex
	Patient orientation		Reflex
	Level (page 20)		

1.3 Symbols :

	SUB-D socket for E-SERVE: for connecting exclusively FHSurgicalcomputer or modem (diagnostics) (page 25)
	Plug symbol
	Service key
	Battery status

	Hand control : Table works on batteries. Battery status full charge / half charge / discharge (page 24)
	Hand control : Status : table works on mains (page 24)
	Hand control : Status : table lock / table unlock (page 24)
	Maintenance key (page 24)

FIG. 2.1 - General description



1 - Mobile base
2 - Column
3 - Table top
4 - Headrest
5 - Back section
6 - Kidney elevator
7 - Sliding seat section
8 - Leg section
9 - Power panel
10 - Power Cord
11 - Battery fuse holder
12 - Connection panel
13 - Hand control
14 - Override
15 - Grounding earthing plug
16 - Electrical characteristics label
17 - Identification label
18 - Primary fuses

2 - General description :

2.1 Description :

C-MAX is a mobile, motorized electro-hydraulic operating table.
Equipped with a large sliding table top (ZIP SLIDE pending patent), C-MAX provides unrestricted radiological access without patient reversing.
C-MAX is suitable for most surgical procedures and is designed to support patient weighing up to 600 lb using standard positions (specified chapter 7, operator manual).
The unique concept of its power supply (INTELLI POWER pending patent) allows the table to be either battery powered or electric powered.
Movements are executed through wired hand control (13) or optional foot control. Also, C-MAX is voice and touch screen control compatible.

C-MAX operating table is comprised of a mobile base (1), a column (2), and a multi-section tabletop (3) which is divided into 5 sections :

- a headrest (removable) (4)
- a back section (5)
- a kidney elevator (6)
- a sliding seat section (7)
- a leg section (removable) (8)

Back, kidney, seat and leg sections movements are motorized.
Headrest adjustment is manual.

C-MAX smart electronic design allows diagnostic and servicing to be performed from a distance by **FHSurgical**'s specialists (E-SERVE compatible).

Built-in sensors provide safety information to the users. These sensors prevent sectional conflict and detect accidental table collisions with external obstructions (AUTO LIMIT SENSORS pending patent).

Electrical power supply :

Input : 100/120 Volts (shunt inside) 50-60 Hz 1 Phase 380 VA max.
A 4.5-meter long power cord hospital grade (10) is provided to connect the table to the mains.
Primary protection by 2 fuses : T 6,3 AH (18)

Mode of operation : 3 min / hour intermittent use

Insulation :

C-MAX is equipped with a grounding post (15) (male connector, DIN42801) at the power panel (9) to prevent electric shock. Female connector not provided by **FHSurgical**.

☞ ***If an antistatic path is necessary, we recommend that you only use recommended antistatic pads, specifically designed for this product and on which the patient must be in direct contact.***
The operating table must be set on an antistatic floor or connected to an equalization device (equipotential connector).

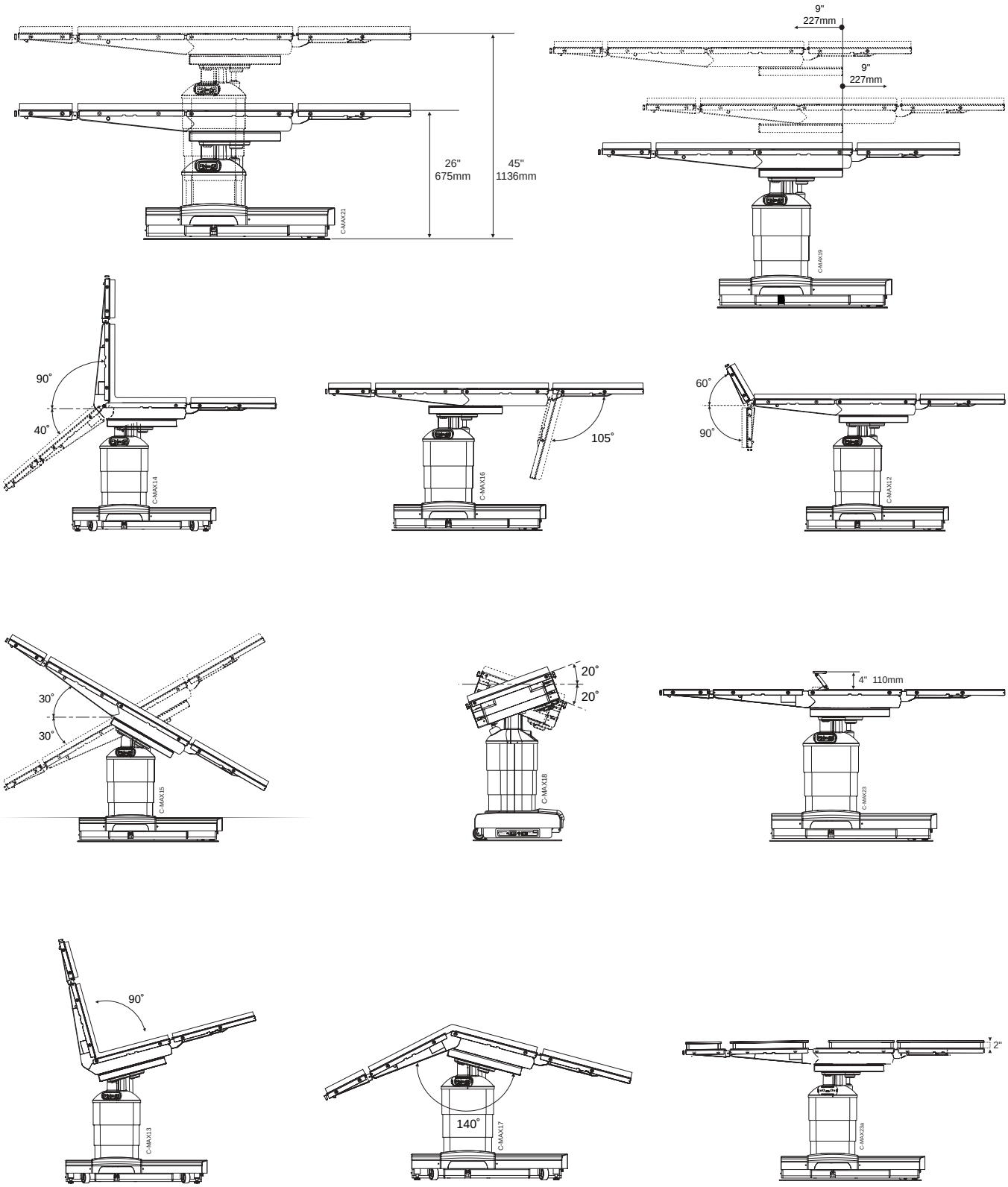
☞ ***When using high frequency surgical equipment such as defibrillators or defibrillator-monitors, carefully follow the manufacturer's instructions.***

☞ ***The table is earthed when table is connected to mains by power cord with earth.***

☞ ***Where the integrity of the external Protective Earth Conductor arrangement is in doubt, equipment shall be operated from its Internal Electrical Power Source.***

☞ ***Table must be equipped with 2 flame retardant lead sealed batteries 12V, available through the FHSurgicalnetwork.***

FIG. 2.2 - Mouvement range



2.2 - Specifications :

- Up / Down		:	45'' - 1136 mm / 26'' - 675 mm
- Lateral tilt left / right		:	20°/20°
- Trendelenburg / reverse Trendelenburg		:	30°/30°
- Back section Up / Down		:	90°/40°
- Leg section Up / Down		:	0°/105°
- Kidney elevator		:	4'' - 110 mm
- Slide Head / Foot		:	9'' - 227 mm / 9'' - 227 mm
- Flex / reflex		:	140° / 90°
- Headrest adjustment is manual : Up/ Down		:	60° / 90°
- Tabletop dimensions :	Length	:	81'' - 2055 mm
	Width (access rails)	:	22'' - 550 mm
- Table weight		:	Approximatively 560 lb (250 kg)
- Patient weight capacity		:	600 lb (270 kg), for standard positions (defined on chapter 7, operator manual).

FIG. 2.3 - TABLE TOP DIMENSIONS

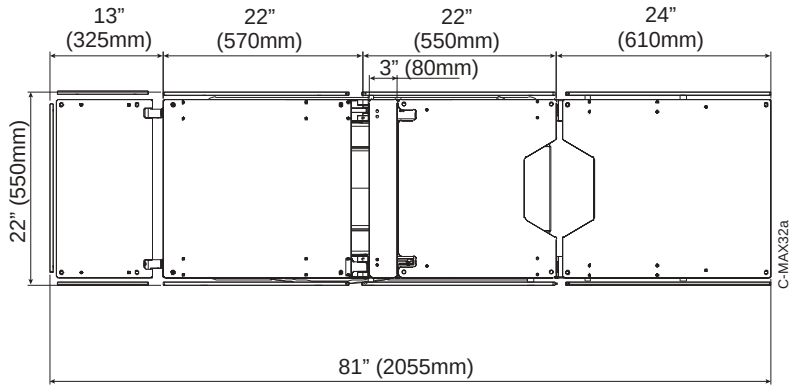
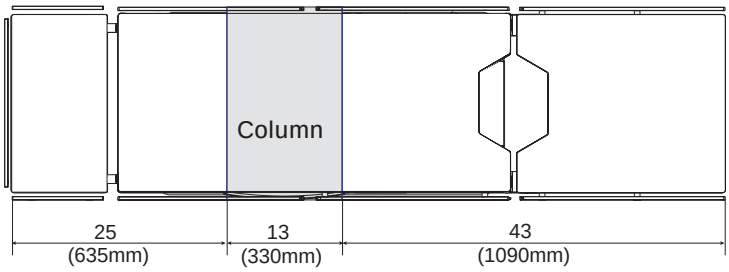
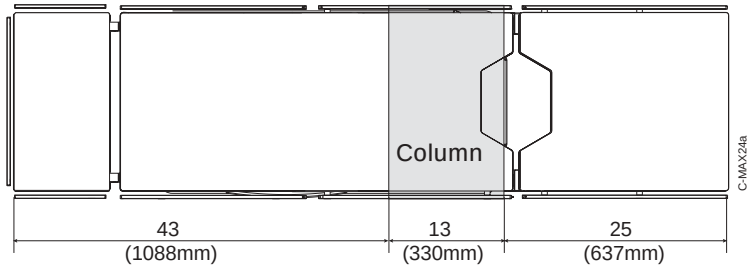


FIG. 2.4 - X-RAY ACCESS





3 Preventive maintenance

3.1 Tools required

- Level
- Torque wrench 5-25Nm
- Metric sockets set
- Metric allen key set
- Circlip pliers
- Extra flat wrench set
- Voltmeter
- Flat screwdrivers (2mm, 4mm)
- Cutting plier

3.2 Four maintenance key :

The following points have to be checked every years.

a) Safety point.

- All cylinders attachments,
- All shafts securing,
- Side rails securing screws.

b) Setting.

- Return to level,
- Sliding chain tension,
- Sliding rack and pinion gearing play.

c) Checks.

Hydraulic parts:
- Hydraulic oil level (65mm - 2’ 9/16)
- All hoses,
- All cylinders, main valves block , floor lock valves block,
- Electrical and foot pumps.

Mechanical parts:
- Locking devices for headrest and leg support,
- Neatness of the column,
- Table rigidity,
- Engagement of the leg support and headrest,
- Floor lock pads condition,
- Greasing of the translation chain and rack and pinion gearing,
- Casters condition, "Grease the caster shaft".

Electrical parts:
- Testing ALS
- Testing of all movements using the main hand control,
- Testing of the foot pedal, and the override hand control,
- Integrity of hand controls and cords,
- Warning message of the hand control and memorized failures,
- All circuit boards, plugs and cables,
- Diagnostic line with E-Serve service software,
- Check the mains power supply switch,
- Battery charger status, and power mode,
- Batteries condition.

d) External appearance.
- Covers tightness,
- Cleaning using a damp sponge and soap.

3.3 Routine maintenance

a) Battery charging.

The battery must be charge at the following time :
- At the first put into service,
- Every evening when the operating day is over,
- Whenever the battery charging indicator LED reach the yellow level.
- When the table remain unused for a long time (6 months).

À Connect mains power cord to table base and plug into the appropriate AC mains receptacle.
Á Ensure that the mains on-off switch is on (illuminated) and verify the mains power mode symbol is light up (Electric power mode).
Â Remain connected until to switch on the last right green LED on the battery charging indicator.
Ã Disconnect the mains power cord and check that the battery power mode symbol is switch on.

b) ALS verifying.

Clear the table top and switch on the table.

À Level the table,

Á Move the table top on the higher position,

Â Slide ahead completely the table,

Ã Lower completely the backrest,

Ä Slide foot the table top until the sliding movement stop,

Å Check on the main hand control if the ALS indicator is switch on.

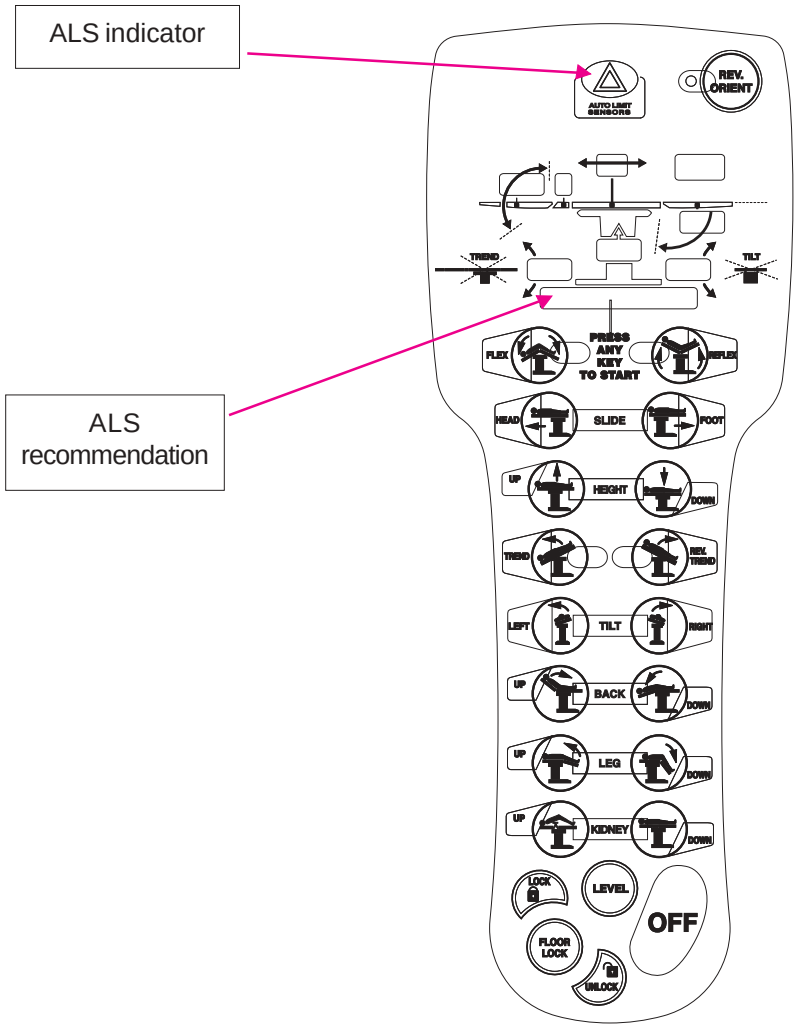


FIG. 3.1 - ALS indicator

c) Emergency hand control.

À Lower completely the table by using the height down push button of the main hand control,

Á Tip up the emergency foot pump pedal,

Â Pull out the drawer and get over the emergency hand control,

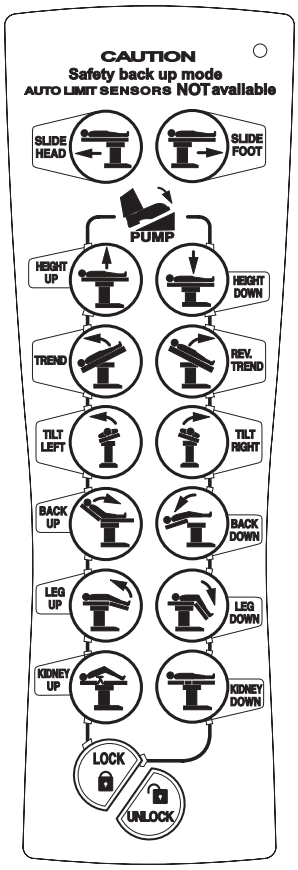


FIG. 3.2 - Emergency hand control

Ã Push the drawer in,
Ä Push the height push button of the emergency hand control and start to pump,
Å Check that the table rise and the main hand control is switch off.

4 Troubleshooting

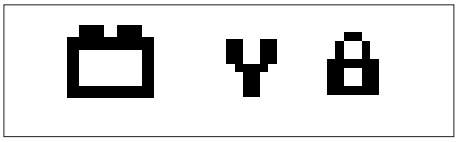
4.1 Operator Troubleshooting chart

MALFUNCTION	POSSIBLE CAUSE	CORRECTIVE ACTION
Table cannot turn on.	• Main battery fuse is blown.	• Replace the battery fuse (see installing battery fuse) or connect the mains (see connecting mains power cord).
	• Main hand control defective.	• Replace the main hand control (see connecting the hand control).
No movement.	• Batteries totally discharged.	• Connect the mains (see connecting mains power cord).
	• Main hand control cord defective.	• Replace main hand control cord (see service procedure).
	• Main hand control defective.	• Replace the main hand control (see connecting the hand control).
	• Electric pump or electronic mother board defective.	• Use override hand control and call **FHSurgical** service department.
Table remain on battery power mode even if the mains power cord is connected.	• Wrong mains cord connection.	• Reconnect the mains power cord (see connecting mains power cord).
	• Mains cord defective.	• Replace mains power cord.
	• Mains fuses blown.	• Replace mains fuse (see service procedure).
	• Mains switch is off (O).	• Switch mains switch on (I).

4.2 Hand control troubleshooting charts:

Table is equipped with auto-diagnostic device. When servicing is required, a key symbol appears at the LCD status indicator window.

LCD Indicator	Table status	Action to be implemented
No "key" symbol	Table ready	No action
Key symbols and message on LCD	Default detected	Press "OFF" and start again the hand control to see if default disappears.
Fixed "key" symbol	Service required.	Call GETINGE service department. Read LCD message.



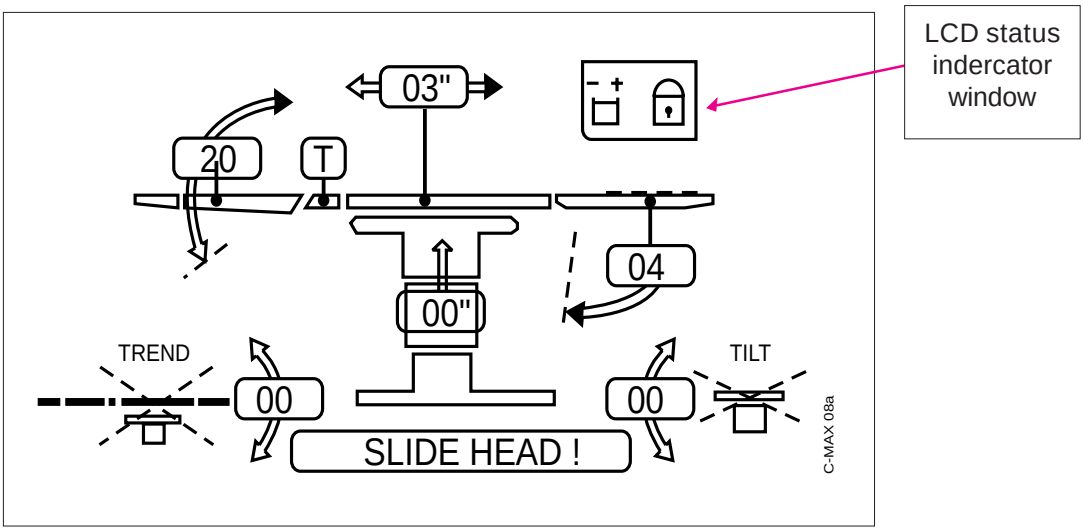


FIG. 4.1 Hand control troubleshooting charts

4.3 LCD message troubleshooting charts

The LCD message are organized according 3 following level (type) of importance :

- Type 1 : Expected use default or no permanent internal default. The default is memorized.
- Type 2 : Internal permanent default. The default is memorized and the maintenance symbol is flickering.
- Type 3 : Internal permanent default. The default is memorized, the maintenance symbol is fixed and the table stop.

Default type	Default displayed	Description	Solution
1	1 KEY ONLY	2 buttons are pressed at the same time.	Press just one button.
1	DUAL COMMANDE	Controls are sent from the foot pedal and the hand control at the same time.	Hand control get the priority;
1	REV ORIENT	Flex and Reflex are forbidden in reverse orientation.	Press Rev Orient.
2	PLUGS MAINS	Battery voltage below 19V.	Plug the mains and check that the mains switch is light (green).
2	LOCK AGAIN	The pressure switch status does not changed after Floor lock or change without any control.	Check if there oil leakage, Check the pressure switch connection. Change the floor lock valves block.
2	WRONG USE	If a button if press more than 1 minute, the table stops.	Release the button.
2	SENSOR DEF	The sensor voltage is out of range (0,3V to 4,7V). Sensor concerned window display --. Some movements could b.	Check the sensor concerned, the wire and connection. Calibrate the sensor. Change the sensor.
2	SENSOR FAIL	Difference between the sensors voltage and the voltage expected by the mother board. All the sensor windows are r.	Calibrate the table.
2	BATT FUSE	The sensor fuse is not in or blown.	Check the fuse. Plug the mains.
2	BATT DEF	The difference between the 2 batteries voltage exceed 0,6V.	Check the voltage of each battery. Replace the battery,
2	CHARGER DEF	The battery charger is out of order or the fuse F1 (inside the battery charger) is blown.	Check the Fuse F1. Change the battery charger.
2	POWER DEF	The mains tranformer is too hot or the fuse F2 is blown. The table works on the battery mode.	Wait untill the transformer cool. Check the fuse F2 (inside the power supply). Replace the power supp.
2	PUMP DEF	No hydraulic pump control.	Change the power supply.
2	VALVE DEF	No valves control.	Change the mother board.
2	MOTOR DEF	No sliding motor control. The slide is out of order.	Replace the sliding board.
2	MOTOR FAIL	The power control is always on. The slide is out of order.	Replace the silding board.
2	SLIDE DEF	No control for the sliding way. The slide is out of order.	Change the sliding board.
2	SLIDE FAIL	The slider way is always controlled. The silder is out of order.	Replace the sliding board.
3	PUMP FAIL	The pump is always controlled.	Change the power supply.
3	BAD VERSION	The hand control software version is incompatible with the mother board software version.	Replace the hand control.
3	VOLTAGE PEAK	The battery voltage is up to 31 V.	Replace the power supply.
3	VALVE FAIL	The valve is always controlled.	Replace the mother board.

5 Repair and replacement procedures.

5.1 Component of the base.

5.1.1 Battery fuse replacement

NECESSARY TOOLS : Multimeter
Screwdriver 4
TIME : 5'

- Switch mains to «OFF»,
- Disconnect the power supply cable,
- Unscrew the fuse cap (located on the foot end of the table),
- Remove the fuse,
- Check if it's blown,
- If so, change the fuse by a new one,
- Put the fuse cap back,
- Before re connecting the mains verify the proper functioning of the table on the battery power mode using the hand control,
- If ok, switch mains to «ON».

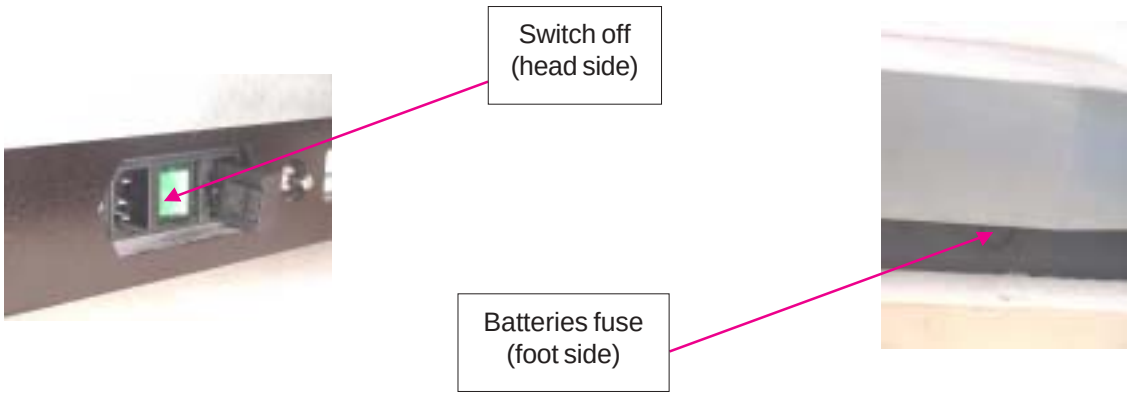


FIG. 5.1 - Battery fuse replacement

5.1.2 Mains fuse replacement.

NECESSARY TOOLS : Multimeter
Screwdriver 4
TIME : 5'

- Switch mains to «OFF».
- Disconnect the power supply cable.
- Take out the fuse holder on the right hand side of the main power switch (green).
- Check the fuses.
- Change defective fuse(s)
- Put the fuse holder back.
- Remove the battery fuse.
- Reconnect the main power cable.
- Switch mains to «ON».
- Verify that the 'intelli-power' is on mains (the green led " charge " must be led).
- Verify the fonctioning of the table.
- Put the battery fuse back.

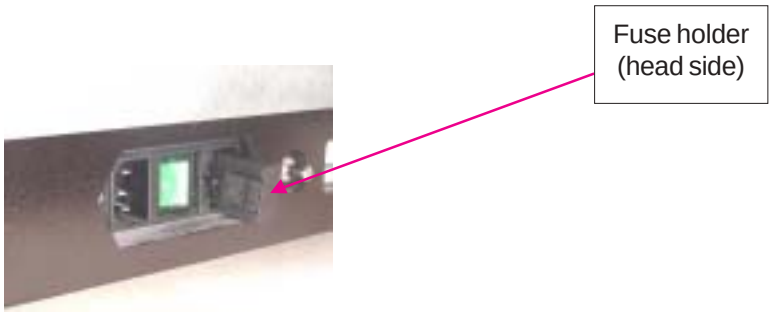


FIG. 5.2 - Mains fuse replacement

5.1.3 Base stainless steel cover replacement.

NECESSARY TOOLS : allen key 3
TIME : < 5'

(head side)

- unscrew the 4 screws on the head side of the base cover.

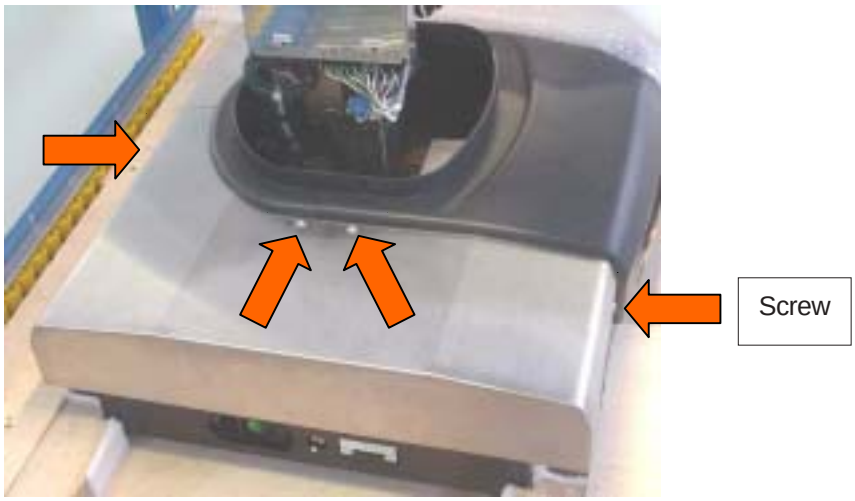


FIG. 5.3 a - Base stainless steel cover replacement

(foot side)

- unscrew the 4 screws on the foot side of the base cover.

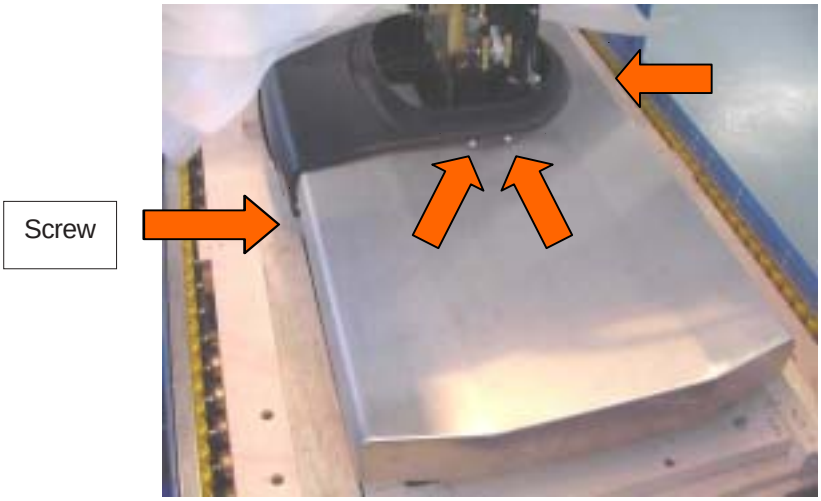


FIG. 5.3 b - Base stainless steel cover replacement

5.1.4 Plastic base cover replacement.

NECESSARY TOOLS : allen key 3
TIME : 10'

- Raise the table to the maximal height.
- Remove the base covers (see 5.1.3).
- Remove the 4 side screws on the base column.
- Raise the lower column cover and remove the plastic cover.

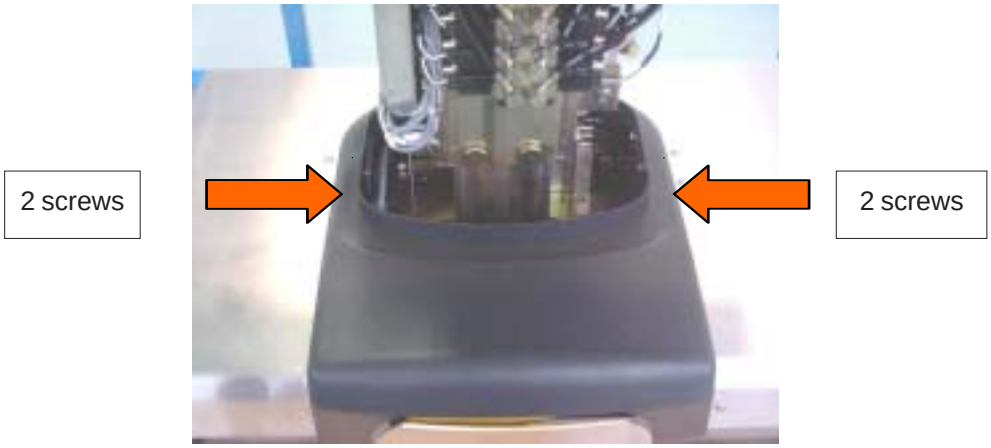


FIG. 5.4 - Plastic base cover replacement

5.1.5 Batteries replacement.

NECESSARY TOOLS : allen key 3
philips screwdriver 2.
multimeter

TIME : 20'

- Switch off the mains and remove the batteries fuse.
- Unscrew the 4 screws on the foot side of the base cover (see 5.1.3).
- Locate the positioning of the electrical cables on the batteries before removing the screws.
- Before replacing the bateries, verify :
  1°) that the engraved numbers on the top plastic cover of the batteries are the same,
  2°) that the difference in voltage between the 2 new batteries does not exceed 0,2V
- Reverse procedure to put the batteries back.

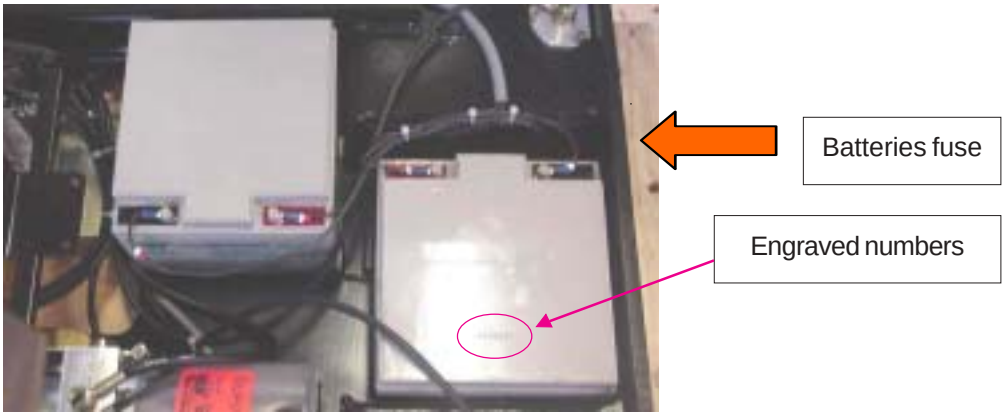


FIG. 5.5 - Batteries replacement

5.1.6 Charger power supply replacement.

NECESSARY TOOLS : allen key 3.
allen key 5.
socket 10.
TIME : 10'

- Switch mains to «OFF» and remove the batteries fuse (see 5.1.1).
- Unscrew the 4 screws on the head side of the base cover (see 5.1.3).
- Unscrew the equipotential plug.
- Unscrew the 2 side screws.
- Slide the power supply unit towards the lift column, then carefully lift up to remove it from its location (avoiding damaging the front panel led display).
- Disconnect the 4 connectors on the back side of the power supply unit.
- To reinstall the power supply unit proceed in reverse order.

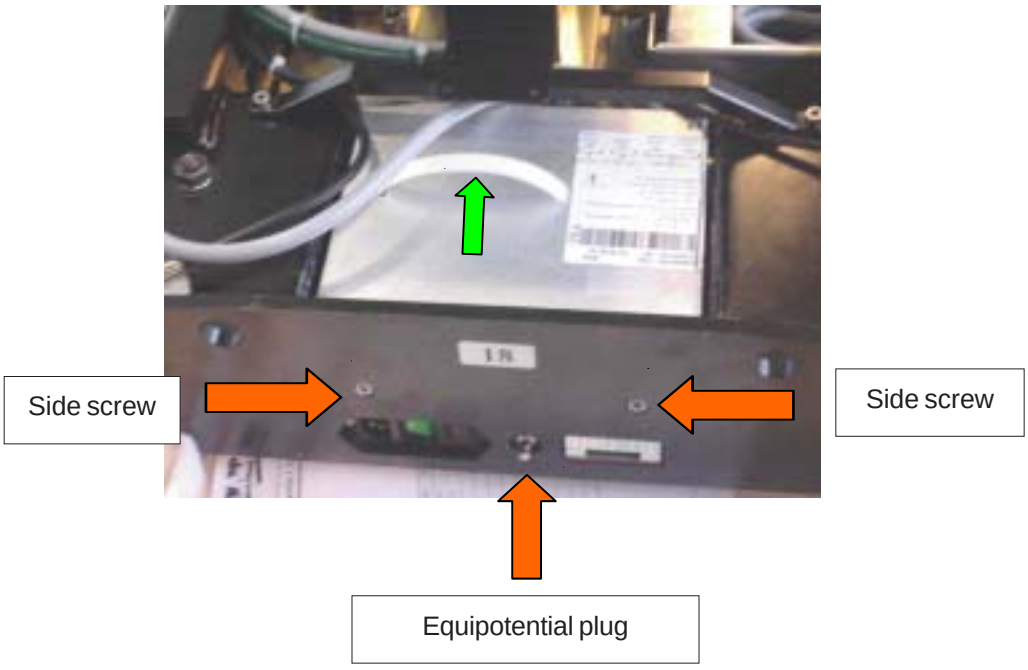


FIG. 5.6 - Charger power supply replacement

5.1.7 Floor lock pad replacement.

NECESSARY TOOLS : allen key 5
extraflat spanner 14
wood block (45mm thick)
loctite 243

TIME : 10' per pad.

- Position the table " floor lock ".
- Lift one side and slide a wood block under the table.
- Use the extraflat spanner to stop the cylinder rod from turning and unscrew the screw underneath the pad from below with the allen key.
- Apply loctite on the tip of the new screw before replacing it.

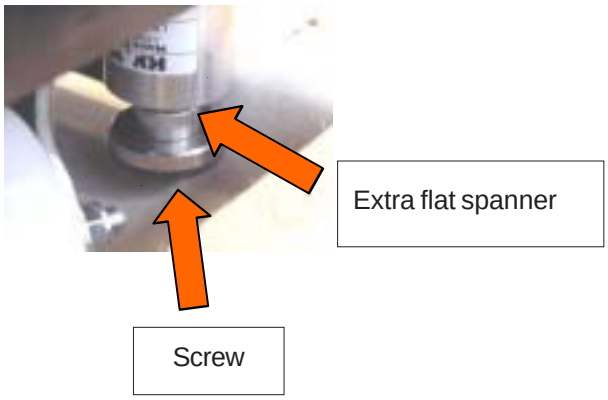


FIG. 5.7 - Floor lock pad replacement

5.1.8 Floor lock cylinder replacement.

NECESSARY TOOLS : torque wrench set at 12 N.m
box 15
allen key 5
allen key 3

TIME : 15'

- Position the table on its wheels.
- Remove the base cover concerned.
- Remove the hydraulic screw on the top of the cylinder pad.
- Take out the 3 screws.
- Remove the cylinder pad.
- IT IS REQUIRED TO EXCHANGE THE FOLLOWING : sealing washers, oneway hydraulic screw (see detail).
- Carefull not to bend the hydraulic cable.
- Floor lock the table several times.

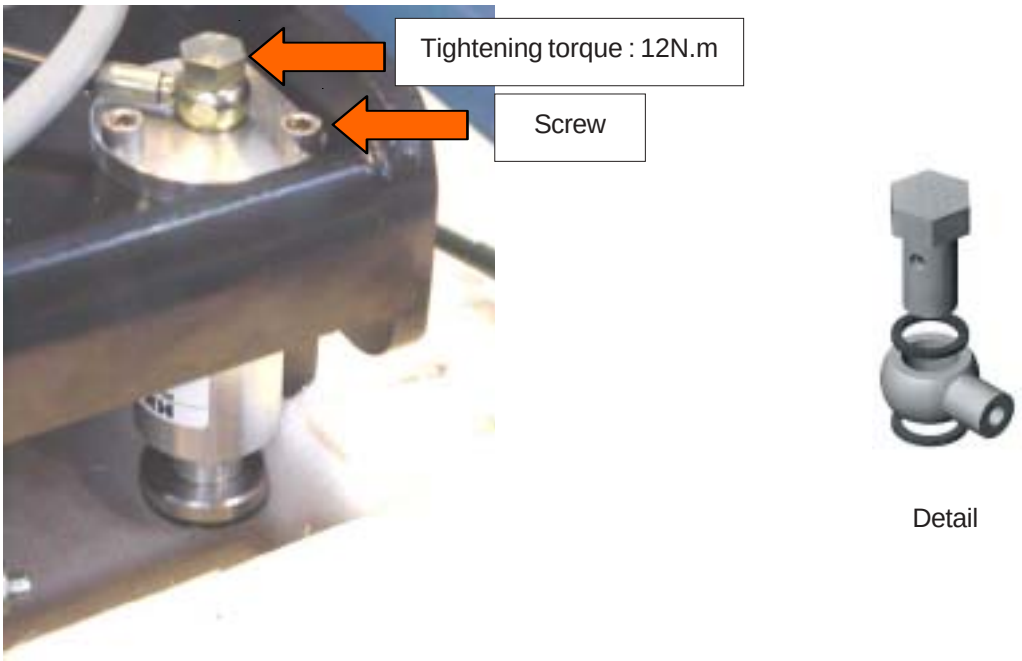


FIG. 5.8 - Floor lock cylinder replacement

5.1.9 Casters replacement.

NECESSARY TOOLS : allen key 3
allen key 10
torque wrench set at 20 N.m
box 19
TIME : 10'

- Floor lock the table.
- Remove the base cover concerned.
- Place the torque wrench on the top of the caster.
- Lock the screw with the alley key 5.
- Remove the nut and its pressure washer

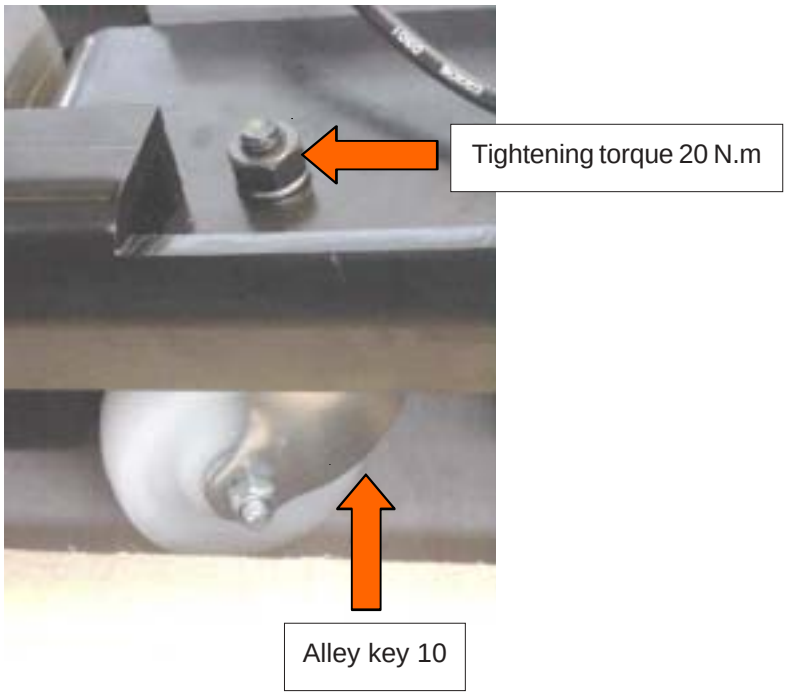


FIG. 5.9 - Casters replacement

5.1.10 Override hand control replacement.

NECESSARY TOOLS : allen key 3
allen key 4
cutting plier

TIME : 30'

- Turn mains switch to «OFF» and remove the batteries fuse.
- Remove the base covers (see 5.1.3), plastic covers (see 5.1.4) and column covers (see 5.2.3).
- Disconnect the connector P5 of the mother board.
- Cut the strip and remove the cable from the cable chain.
- Open and pull out the drawer by pushing down the end stop plate.
- Unscrew and remove the drawer support.
- Remove the drawer and the override hand control together.
- Install the new override hand control and check each table fonction before to put the cover back.

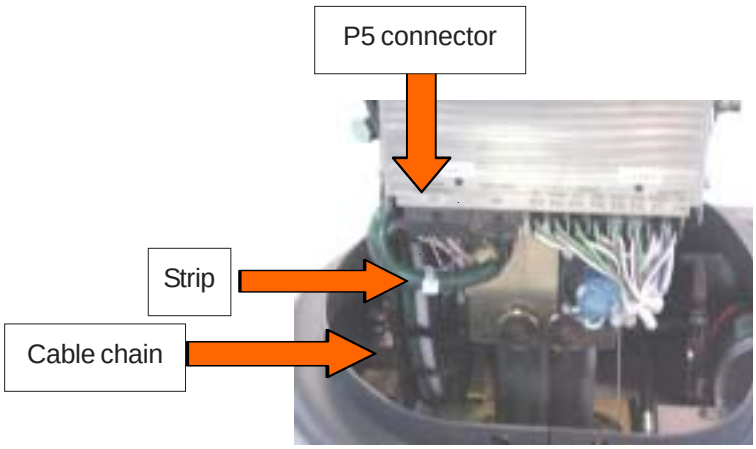


FIG. 5.10 a - Override hand control replacement

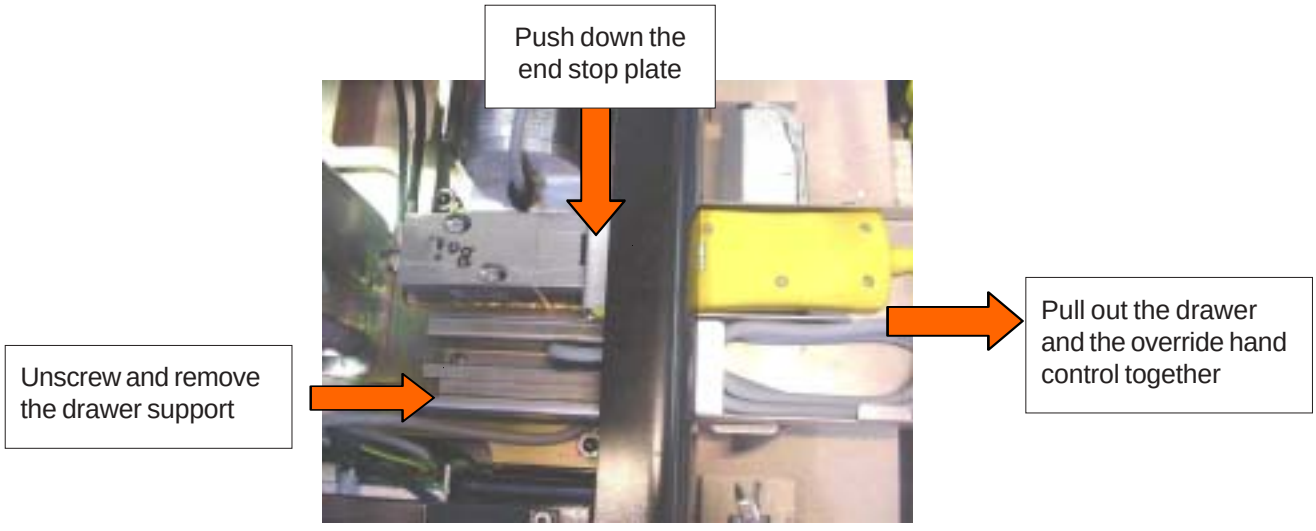

Push down the end stop plate
Unscrew and remove the drawer support
Pull out the drawer and the override hand control together

FIG. 5.10 b - Override hand control replacement

5.1.11 Floor lock valve block replacement

NECESSARY TOOLS : allen key 3
allen key 5
torque wrench set at 12Nm

TIME : 45'

- Place the table on its wheels.
- Turn table mains to «OFF» and remove the battery fuse.
- Remove the base covers (see 5.1.3), plastic covers (see 5.1.4).
- Place battery #2 on top of battery #1.
- Remove all hydraulic and electrical connections to the floor lock valve block. It is advised to locate their position and conections before removing them.
- Remove the 2 fastening screws of the floor lock valves block.
- To reinstall, clean the foor lock valve block and proceeding in reverse order of disassembly. change all hydraulic two-ways screws (see detail) and all sealing washers.

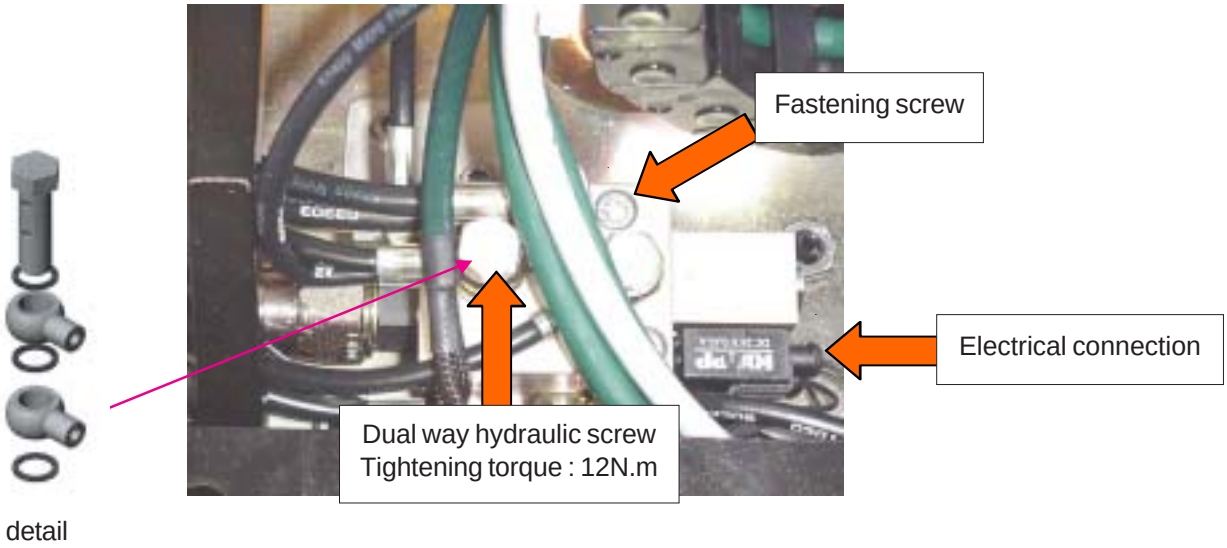


FIG. 5.11 - Floor lock valves block replacement

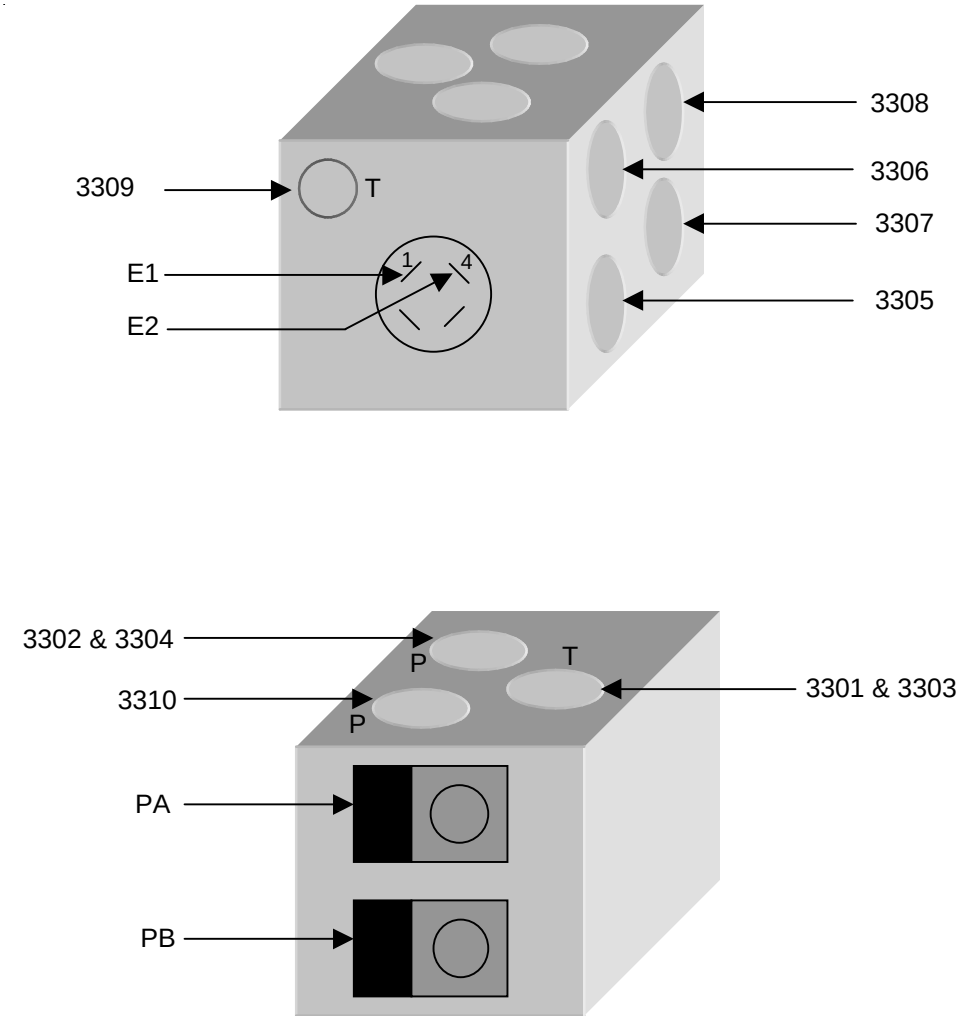


FIG. 5.12 - Block connection

5.1.12 Hydraulic pump replacement.

NECESSARY TOOLS : allen key 3
allen key 5
torque wrench set at 12Nm

TIME : 30'

- Place the table in a horizontal position (leveled), slide at zero.
- Table should be in up posotion for pump access.
- Remove the 4 lower screws of the column cover.
- Lift column covers and secure withe bungycord.
- Verify that the hooks do not grab any elelctrical or hydraulic cables.
- Switch mains to «OFF» and remove the batteries fuse.
- Remove the base covers (see 5.1.3), plastic covers (see 5.1.4).
- Remove cover support bracket.
- Disconnect the electrical harness from the battery charger (connector TB3).
- Remove the hydraulic connection on the top of the pump (see detail).
- Remove the three screws holding the pump's frame (2 on one side, one on the other).
- Remove the hydraulic pump system out of the base.
- Reverse procedure for reinstallation of the pump.
- Check several movements.
- Check oil level (65 mm - 2' 9/16 when the table is leveled and completly down).

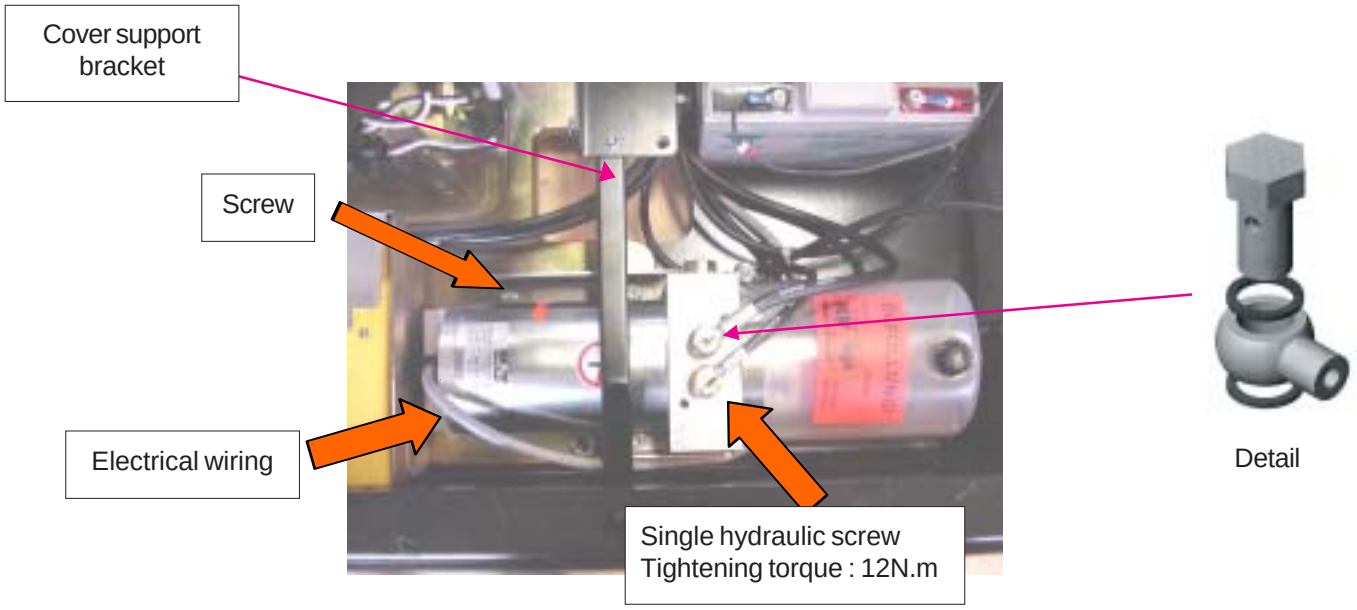


FIG. 5.13 - Hydraulic pump replacement

NOTE: - Hose #3303 ON T.
- Hose ,#3304 ON P.

5.2 Components of the column.

5.2.1 Main hand control.

NECESSARY TOOLS : none

TIME : 3’

- Turn table to OFF.
- Pull back the lock of the connector.
- Disconnect the cable and change the hand control.
- Check each button, ALS function and the LCD display.

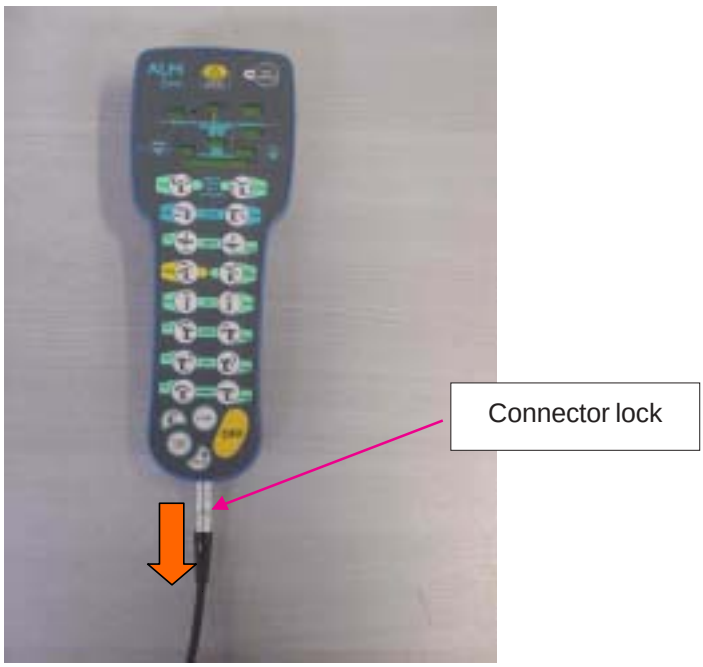


FIG. 5.14 - Main hand control

5.2.2 Main hand control cable.

NECESSARY TOOLS : none

TIME : 3’

- Switch off the table.
- Pull back the connector lock.
- Disconnect the cable from the hand control and fron the connection panel
- Check each button, ALS function and the LCD display.

5.2.3 Column stainless steel cover replacement.

NECESSARY TOOLS : allen 3
flat screwdriver

TIME : 15'

- Lower the table.
- Remove the 6 screws of the top cover.
- Put the table in the upper position.
- Open with a flat screwdriver the covers.
- Remove the 4 screws of the lower cover.

FIG. 5.15 - Column stainless steel cover replacement

5.2.4 Top column plastic covers replacement.

NECESSARY TOOLS : allen 3
spanner 19
spanner 18

TIME : 45’

- Level the table, raise to the maximun height.
- Switch off the table.
- Turn the mains OFF and remove the batteries fuse.
- Disconnect the hand control from the connection panel.
- Remove the 6 lower screws of the plastic cover.
- Remove the 6 upper screws of the plastic cover.
- Open carefully the plastic cover with the connection panel then disconnect the cable from the connector P3 of the mother board.
- Unscrew the rod of the tilt cylinder. **WARNING** : the tilt is free and the table top can move.
- Remove the plastic cover.
- Reverse procedure for re-installing the cover but check the distance between the schaft of the tilt cylinder and the nut (see FIG. 5.16 b).

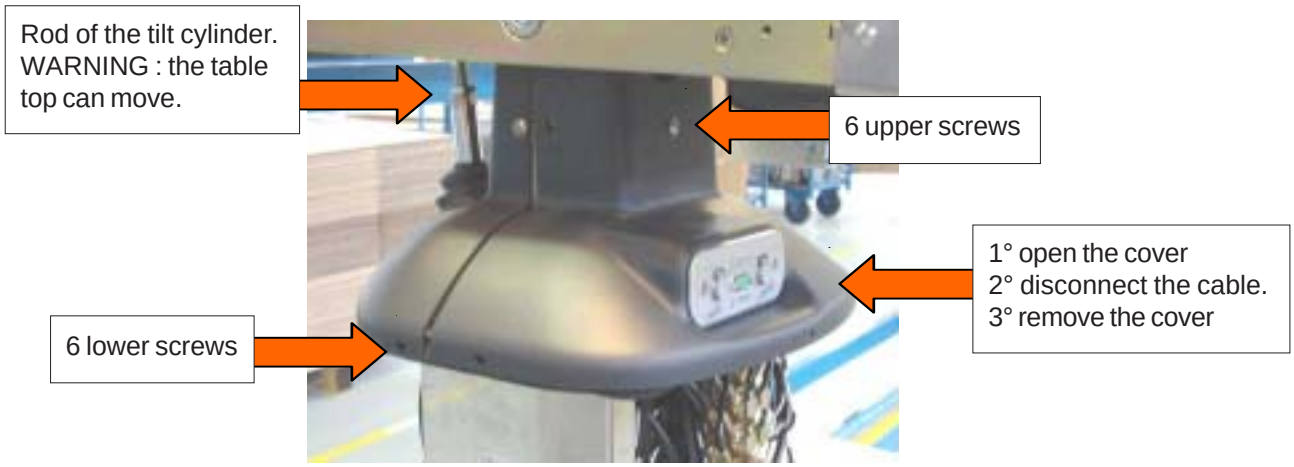

Rod of the tilt cylinder.
WARNING : the table top can move.
6 upper screws
1° open the cover
2° disconnect the cable.
3° remove the cover
6 lower screws

FIG. 5.16 a - Tab column plastic cover replacement

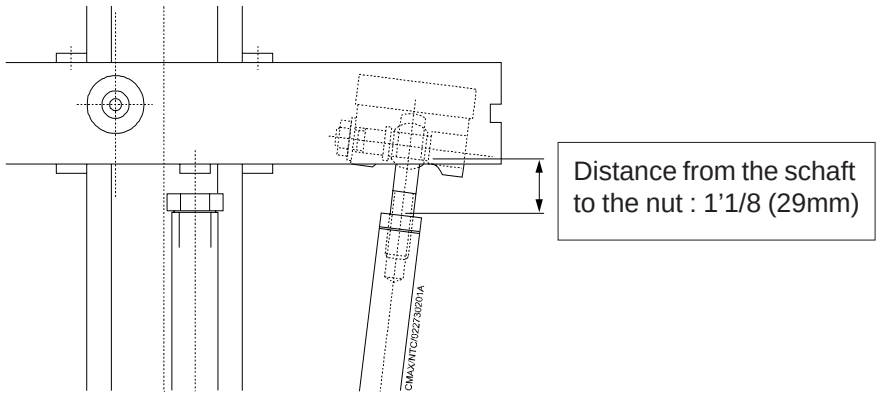


FIG. 5.16 b - Tab column plastic cover replacement

5.2.5 Up/Down sensor replacement.

NECESSARY TOOLS : allen 3
allen 4
allen 5

TIME : 30'

- Raise the table to the maximum height.
- Switch off the table.
- Turn the mains OFF and remove the batteries fuse.
- Remove the 6 lower screws of the plastic cover.
- Unscrew the sensor cable from the base.
  Note: Do not allow cable to retract unrestricted.
- Disconnect the P6 connector and P75 connector (height sensor) from the CPU board.
- Remove the lower screw of CPU to gain access to the sensor screws.
- Unscrew the 2 screws of the sensor.
- Revers procedure for re-installing the sensor and adjust the level (see 6.1).

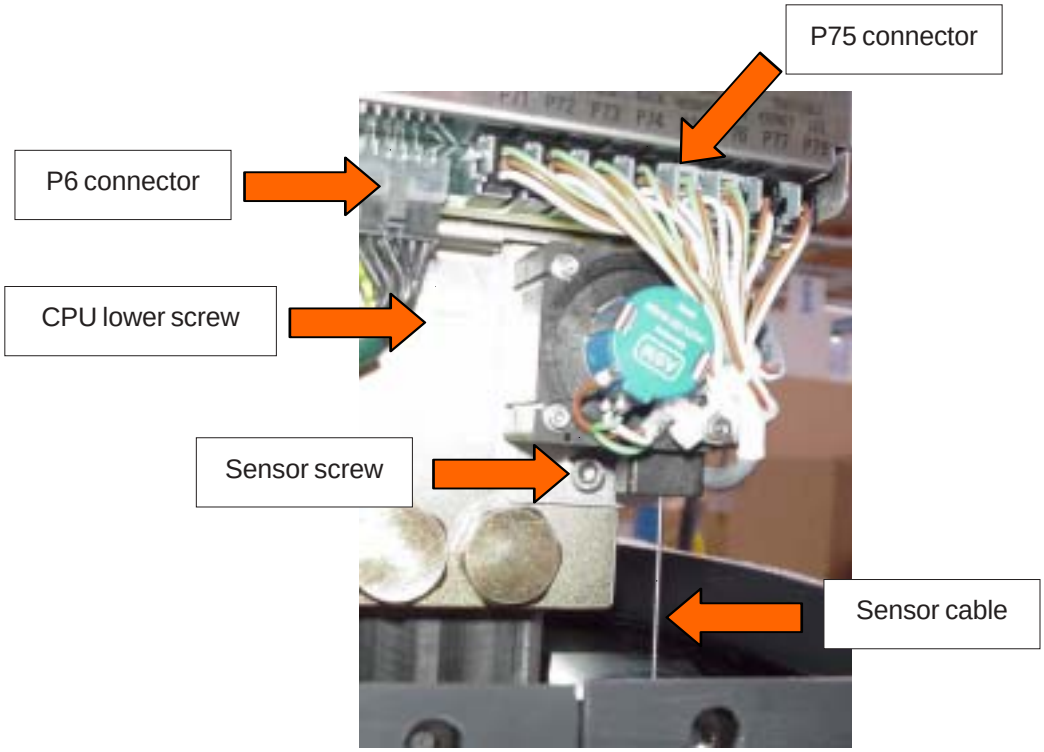


FIG. 5.17 - UP/Down sensor replacement

5.2.6 Mother board replacement.

NECESSARY TOOLS : allen 3
allen 4

TIME : 20'

- Raise the table to the maximum height.
- Switch off the table.
- Turn the mains OFF and remove the batteries fuse.
- Remove the 6 lower screws of the plastic cover.
- Disconnect the lower connectors from the tilt and CPU slide down CPU board.
- Remove the cover screw of the CPU board.
- Disconnect the upper connectors
- Reverse procedure to re-install the sensor and adjust the level (see 6.1).
- Check all function (movement, ALS,…).

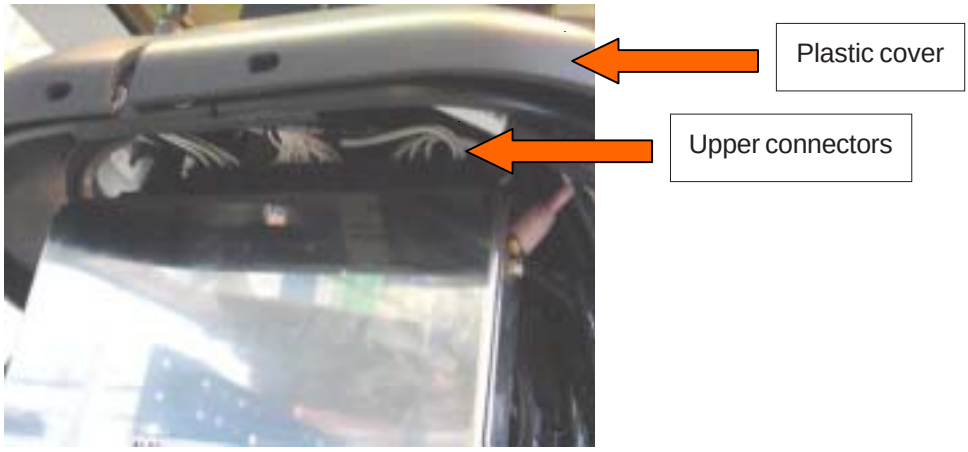


FIG. 5.18 a - Mother board replacement

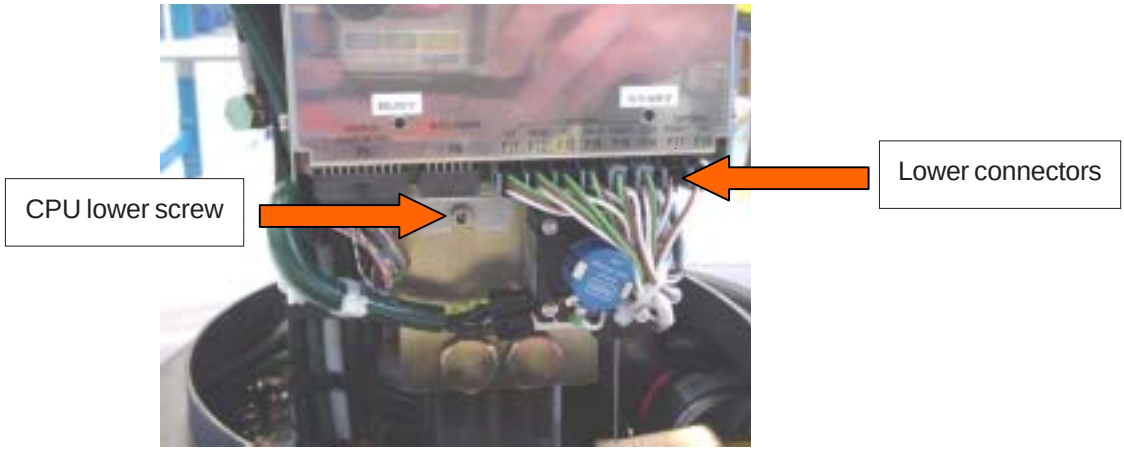


FIG. 5.18 b - Mother board replacement

5.2.7 Tilt cylinder replacement.

NECESSARY TOOLS : - allen 3
- spanner 19
- spanner 18
- torque wrench set at 12Nm
- circlip plier
- ruler
- socket 12

TIME : 45'

- Level the table, raise to the maximun height.
- Switch off the table.
- Turn mains switch to OFF and remove the batteries fuse.
- Remove the 6 lower screws of the plastic cover, and lower all column shields to the base.
- Remove the 3 upper screws of the tilt cylinder plastic cover.
- Unscrew the rod of the tilt cylinder. **WARNING** : the tilt is free and the table top can move.
- Remove the plastic cover.
- Remove the circlip from the bottom of the cylinder and the retaining pin.
- Disconnect the 2 hydraulical hoses from the cylinder.
- Reverse procedure to re-install the cylinder but check the distance between the schaft of the tilt cylinder and the nut (see detail 2).
- Tilt the top several time to check the oil leakage, check the oil level (65 mm / 2' 9/16 when the table is leveled and completly down) then adjust the level (see 6.1)

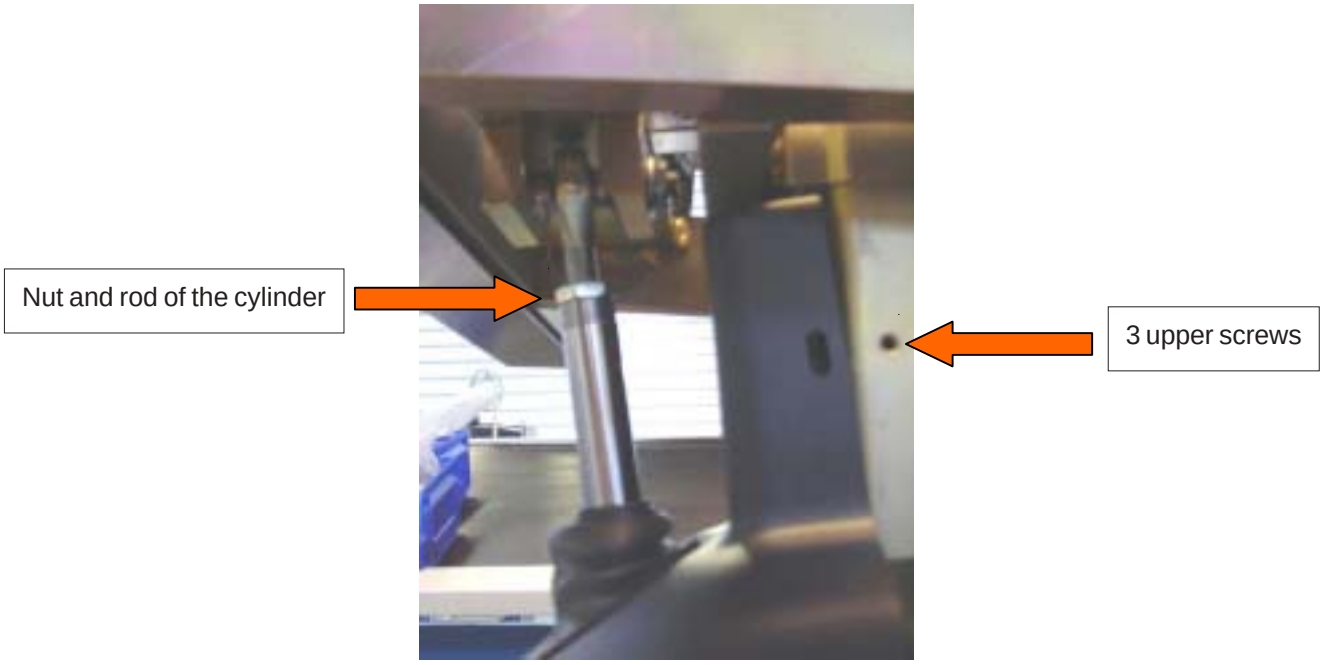


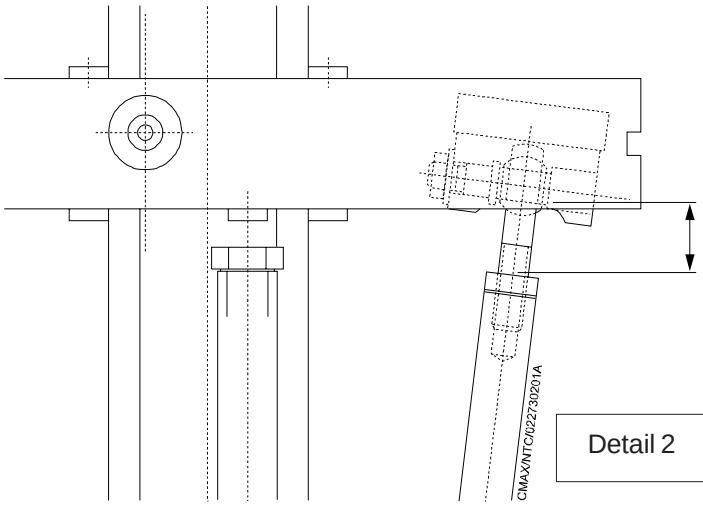
FIG. 5.19 a - Tilt cylinder replacement

Tightening torque : 12N.m

Detail 1

Circlip and retraining pin

FIG. 5.19 b Tilt cylinder replacement



Distance from the schaft to the nut : 1'1/8 (29mm)

Detail 2

FIG. 5.19 c Tilt cylinder replacement

5.2.8 Tilt bellow replacement.

NECESSARY TOOLS : allen 3
spanner 19
spanner 18
ruler

TIME : 20'

- Level the table, raise to the maximun height.
- Switch off the table.
- Remove the 6 lower screws of the plastic cover.
- Remove the 3 upper screws of the tilt cylinder plastic cover.
- Unscrew the rod of the tilt cylinder. **WARNING** : the tilt is free and the table top can move.
- Remove the plastic cover then remove the billow.
- Reverse procedure for re-installing the cylinder but check the distance between the schaft of the tilt cylinder and the nut (see FIG 5.20 b).
- Adjust the level (see 6.1)

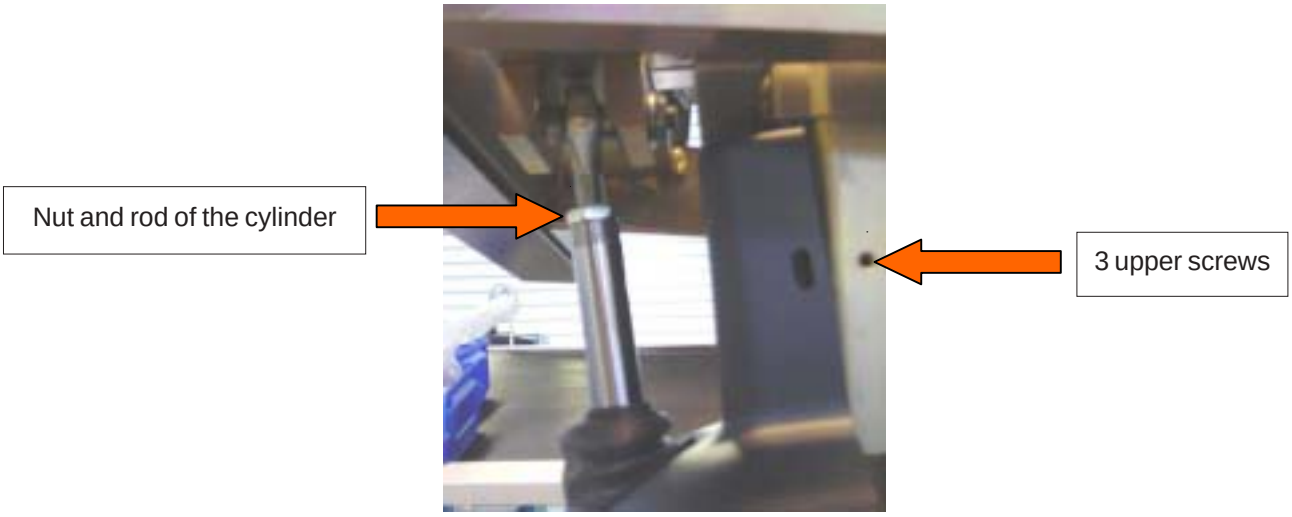


FIG. 5.20 a - Tilt bellow replacement

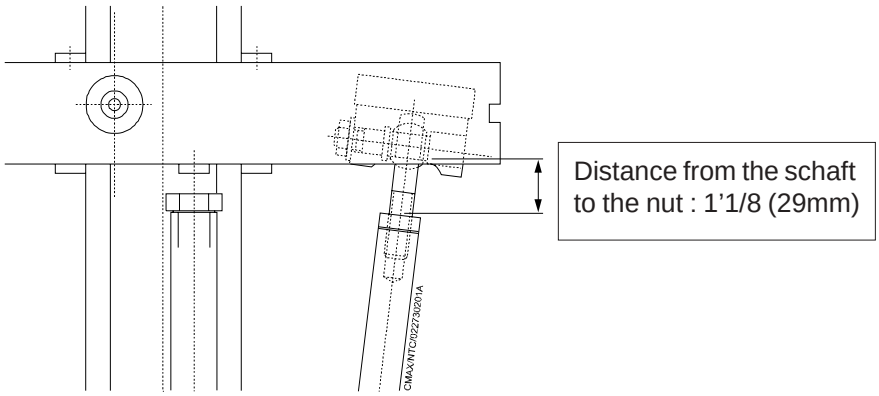


FIG. 5.20 b Tilt bellow replacement

5.2.9 Trend cylinder replacement.

NECESSARY TOOLS : - allen 3
- spanner 20
- spanner 24
- torque wrench set at 12Nm
- circlip plier
- ruler
- socket 12

TIME : 45’

- Level the table and remove the leg support, raise to the maximun height, slide to the maximum head side and trend maximum.
- Switch off the table.
- Turn the mains to OFF and remove the batteries fuse.
- Remove the 6 lower screws of the plastic cover.
- Remove the 6 upper screws of the trend cylinder plastic cover.
- Remove the circlip from the bottom of the cylinder and the retaining pin.
  WARNING : the trend is free and the table top can move.v
- Unscrew the rod of the trend cylinder.
- Disconnect the 2 hydraulical hoses from the cylinder.
- Reverse procedure to re-install the cylinder but check the distance between the schaft of the trend cylinder and the nut (see FIG 5.21 c).
- Trend the top several times to check the oil leakage, check the oil level (65 mm - 2’ 9/16 when the table is leveled and completly down) then adjust the level (see 6.1)

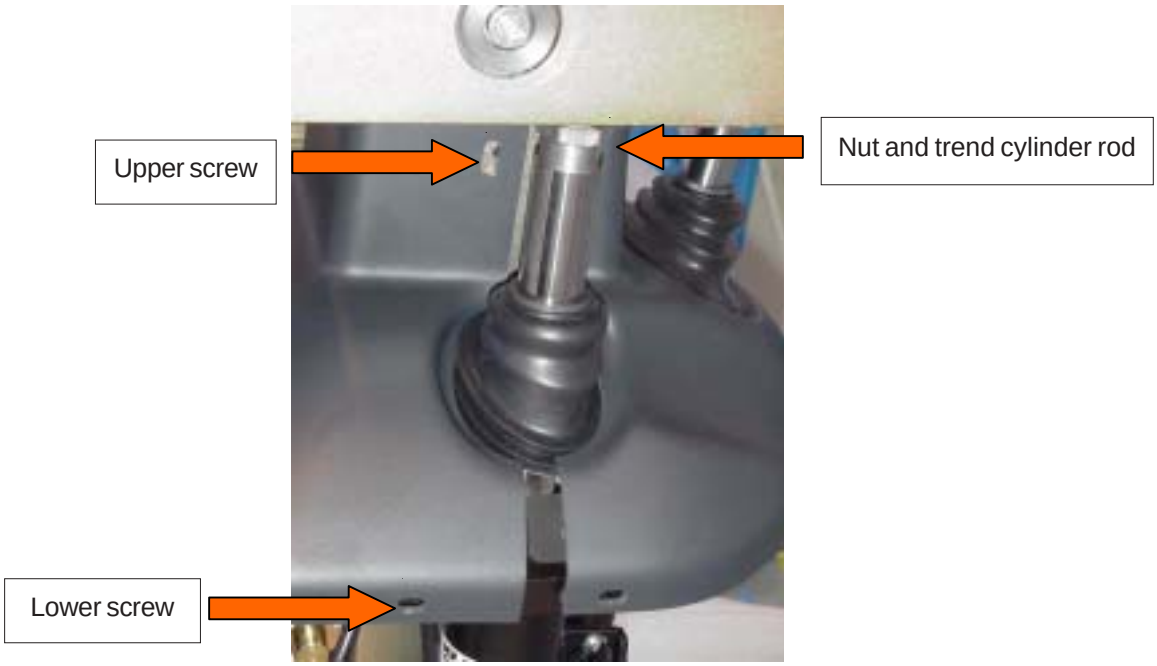


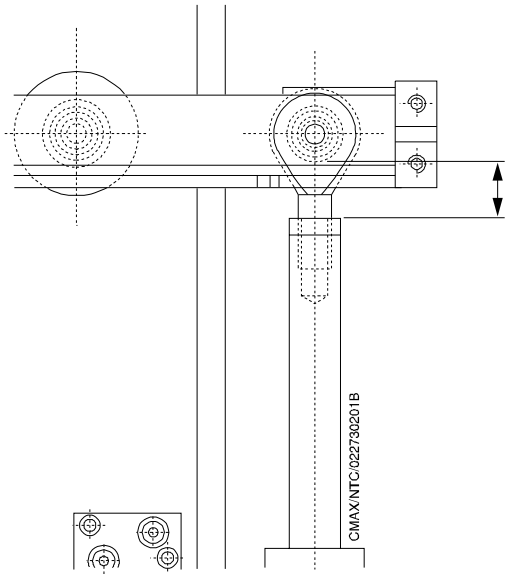
FIG. 5.21 a - Trend cylinder replacement

Tightening torque : 12N.m

Detail 1

Circlip retraining pin

FIG. 5.21 b - Trend cylinder replacement



Distance from the schaft
to the nut : 1’5/16 (33mm)

FIG. 5.21 c - Trend cylinder replacement

5.2.10 Trend bellow replacement.

NECESSARY TOOLS : allen 3
spanner 20
spanner 24
ruler

TIME : 30'

- Level the table and remove the leg support, raise to the maximun height, slide to the maximum foot.
- Switch off the table.
- Turn the mains to OFF and remove the batteries fuse.
- Remove the 6 lower screws of the plastic cover.
- Remove the 6 upper screws of the trend cylinder plastic cover.
- Unscrew the rod of the trend cylinder. **WARNING** : the trend is free and the table top can move.
- Remove the defective billow.
- Reverse procedure to re-install the cylinder but check the distance between the schaft of the trend cylinder and the nut (see FIG 5.22 b).
- Adjust the level (see 6.1)

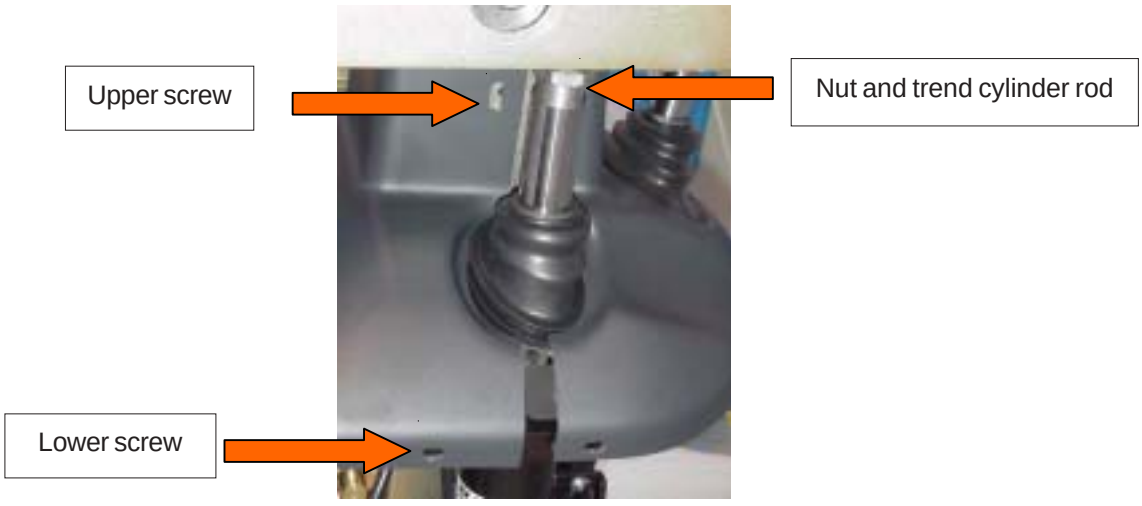


FIG 5.22 a - Trend bellow replacement

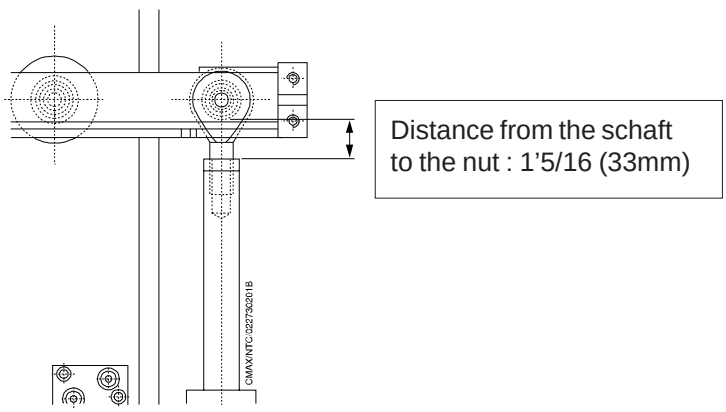


FIG 5.22 b - Trend bellow replacement

5.2.11 Main valves block replacement.

NECESSARY TOOLS : allen 3
allen 4
torque wrench set at 12Nm
wood block
socket 12

TIME : 60'

- Level the table, remove the leg support, slide maximum foot, lower the back rest, tilt maximum left reverse trend maximum and raise to the maximun height. Secure the height with a wood block placed under the column.
- Switch off the table.
- Turn the mains to OFF and remove the batteries fuse.
- Remove the 6 lower screws of the plastic cover and lower the column covers.
- Remove all the hydraulic connection. **WARNING** : the table top is free and it can move.
- Disconnect the electrical connection.
- Unscrew the 2 fastening screws of the main valves block.
- Reverse procedure to re-install the main valve block according the hydraulical and electrical connection table (see FIG 5.23)
  NOTE: Respect the way of hydraulic hoses.
- Check all movements several times to bleed the hydraulical circuit and refill the oil tank, if necessary (oil level is 65 mm - 2' 9/16 when the table is leveled and completly down)
- Adjust the speed of concerned movement (see 6.2).

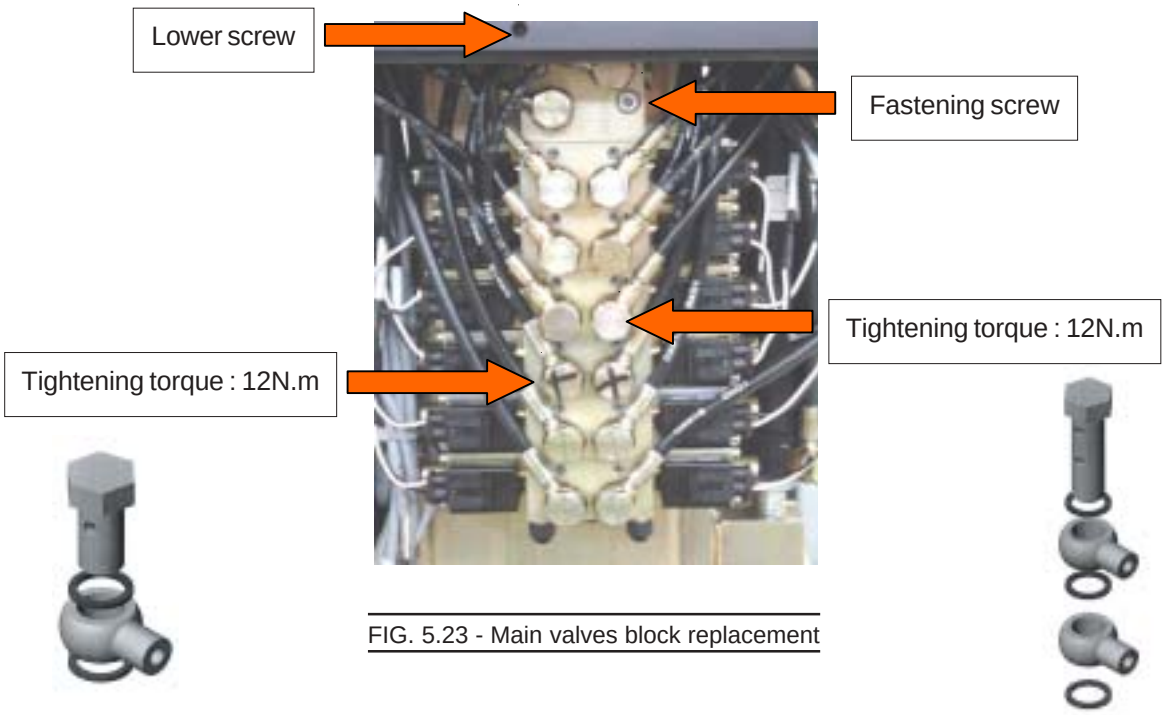


FIG. 5.23 - Main valves block replacement

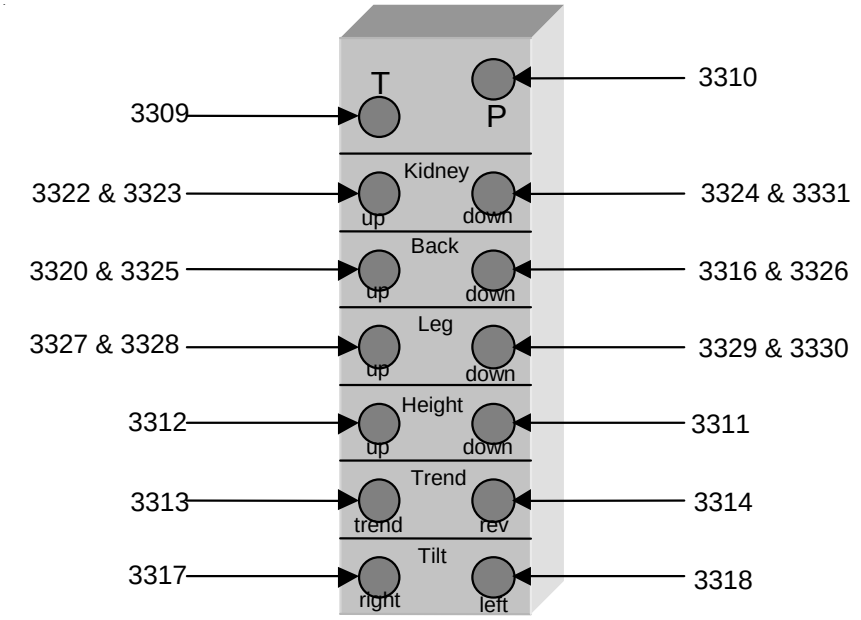


FIG. 5.24 - Main valves block hydraulical connection

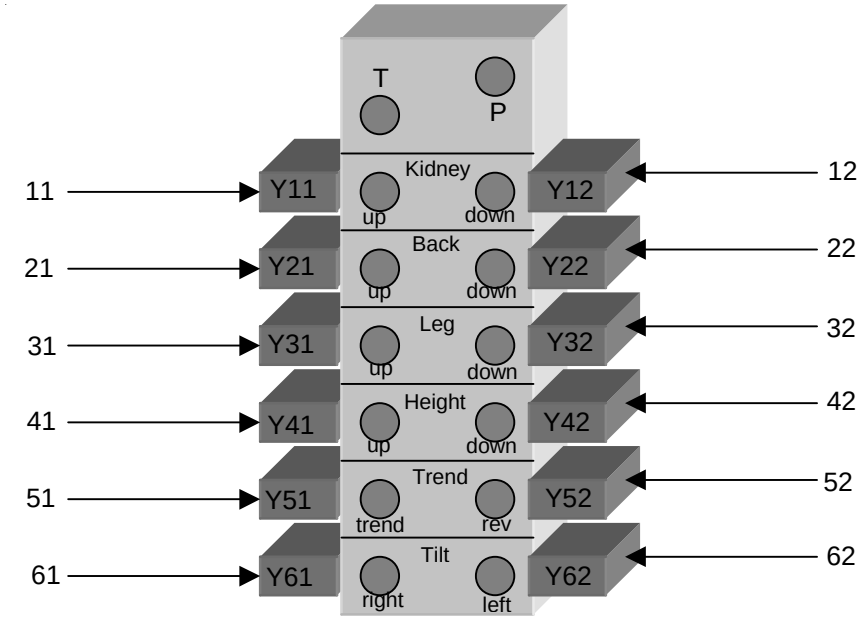


FIG. 5.25 - Main valves block electrical connection

5.2.12 Up/Down cylinder replacement.

NECESSARY TOOLS : allen 2,5
allen 4
allen 6
allen 10
spanner 13
torque wrench set at 12Nm
socket 12
wood block

TIME : 45'

- Level the table, slide maximum towards the foot end, back up max, height maximum down.
- Switch the table off.
- Tip up the table to the side, secure it with a wood block and unscrew the cylinder bolt underneath the table.
- Remove the wood block and tip down the table. **WARNING:** table must not remain tipped.
- Remove the 4 screws of the seat plastic cover (only head side) and slide it to remove. (see 5.3.9)
- Remove the top cylinder bolt, then the 4 side screws and remove the cylinder mounting plate.
- Unscrew the hydraulic connection and remove the lift cylinder. **WARNING:** do not pitch the hoses.
- For reinstalling the cylinder, place the cylinder rod end in the bottom slot.
- Tight the cylinder bolt underneath before to attach the cylinder mount g plate. **WARNING:** the hoses ,must be in the right position.
  NOTE: the screws must be loctited 242.
- Height up and down the table several time and check the oil leakage, then adjust the level (see 6.1).

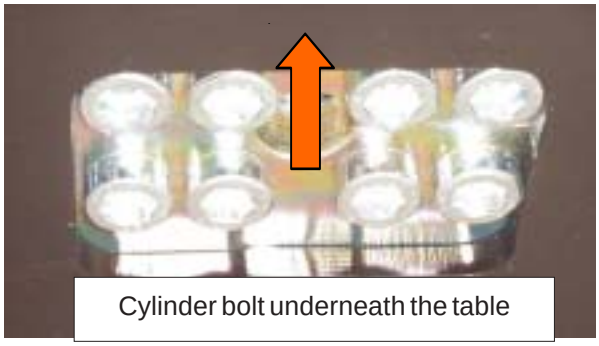


FIG. 5.26 a - Up/Down cylinder replacement

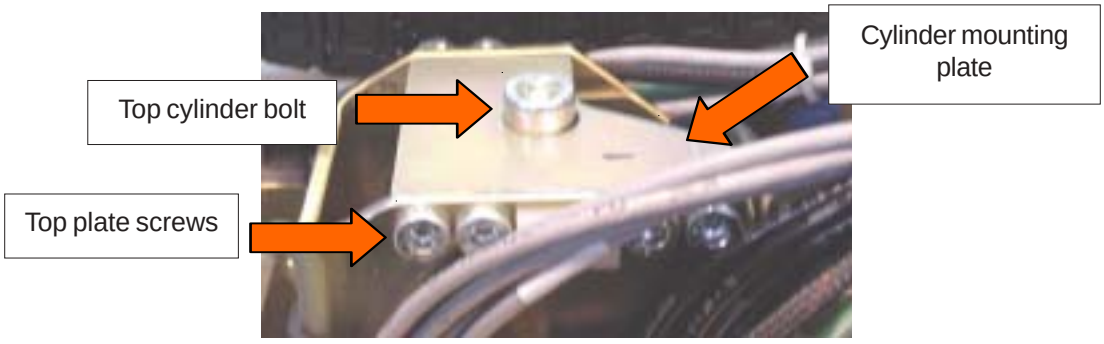


FIG. 5.26 b - Up/Down cylinder replacement

5.3 Component of the seat section.

5.3.1 Seat section plate replacement.

NECESSARY TOOLS : allen 4

TIME : 5’

- Remove the 6 fastening screws.
- Remove the seat plate.

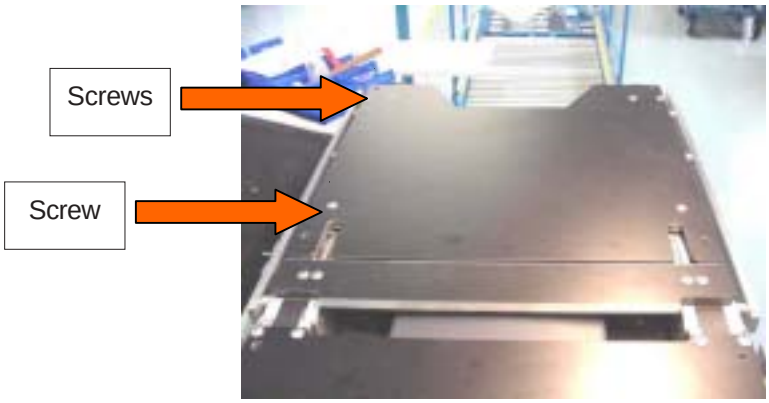


FIG. 5.27 - Seat plate replacement

5.3.2 Kidney plate replacement.

NECESSARY TOOLS : allen 4

TIME : 5’

- Remove the 4 fastening screws.
- Remove the seat plate.

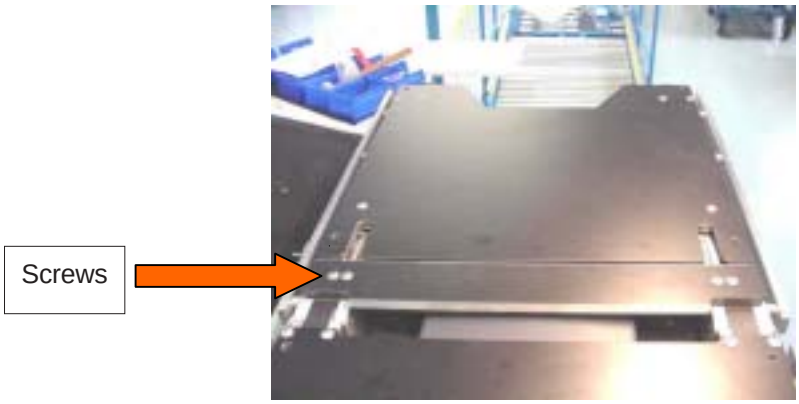


FIG. 5.28 - Seat plate replacement

5.3.3 Leg support locking device replacement.

NECESSARY TOOLS : allen 2,5

TIME : 10'

- Level the table.
- Remove the leg support.
- Remove the left and right nozzle cover.
- Remove the closing plate then remove the spring and the lock.
- Reverce procedure to re-install the locking device and check the locking of the leg support.

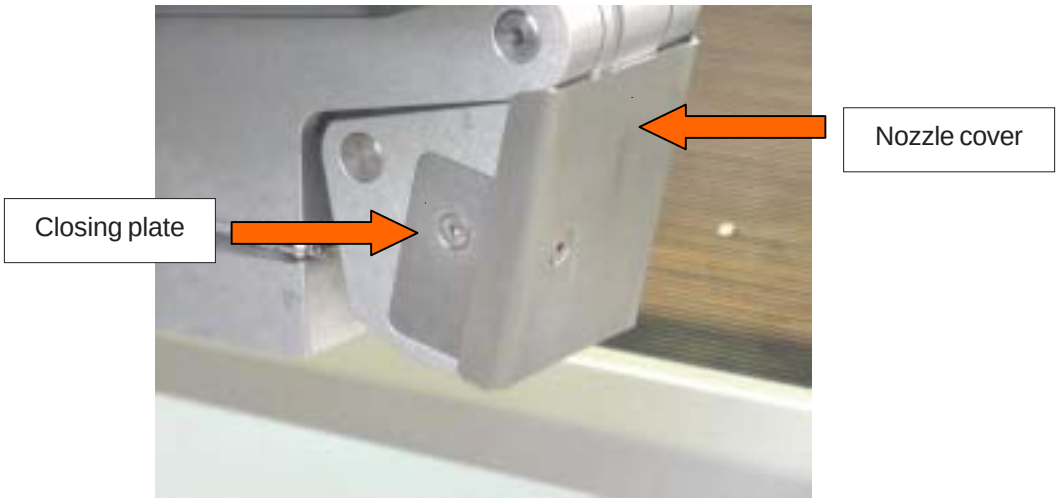


FIG. 5.29 a - Leg support locking device replacement

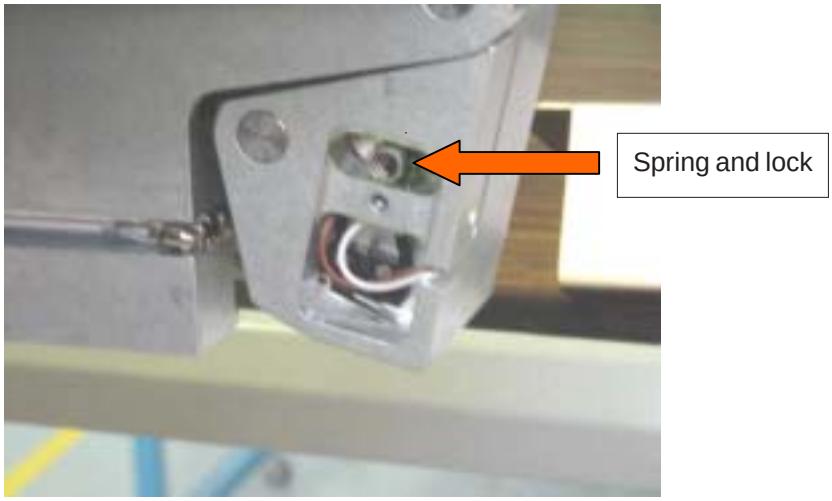


FIG. 5.29 b - Leg support locking device replacement

5.3.4 Leg support switch replacement.

NECESSARY TOOLS : allen 2,5
flat screwdriver 2,5

TIME : 15'

- Level the table.
- Remove the leg support.
- Remove the left and right nozzle cover.
- Remove the closing plate.
- Unscrew the 2 fastening screw and remove the switch.
- Reverse procedure to re-install the switch then check the switch status on the hand control and check the locking of the leg support.

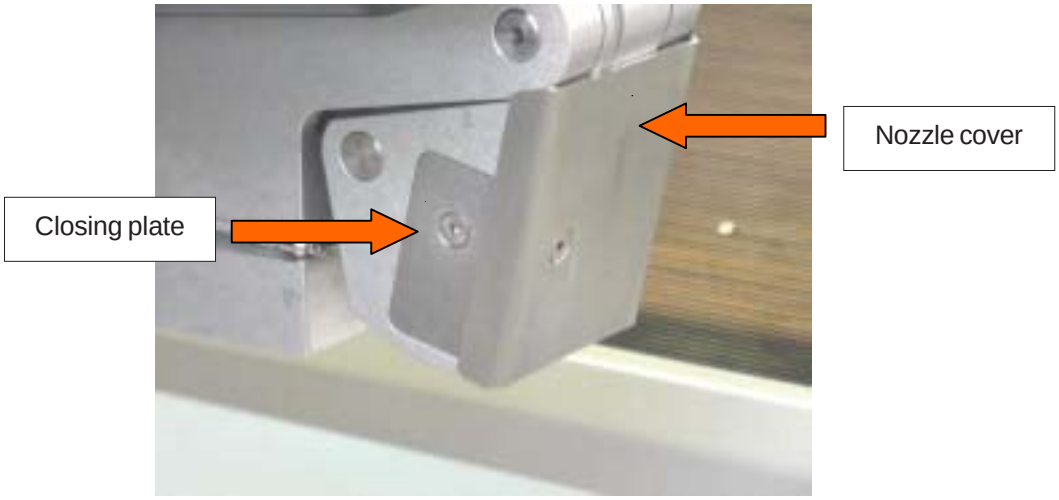


FIG. 5.30 a - Leg support switch replacement

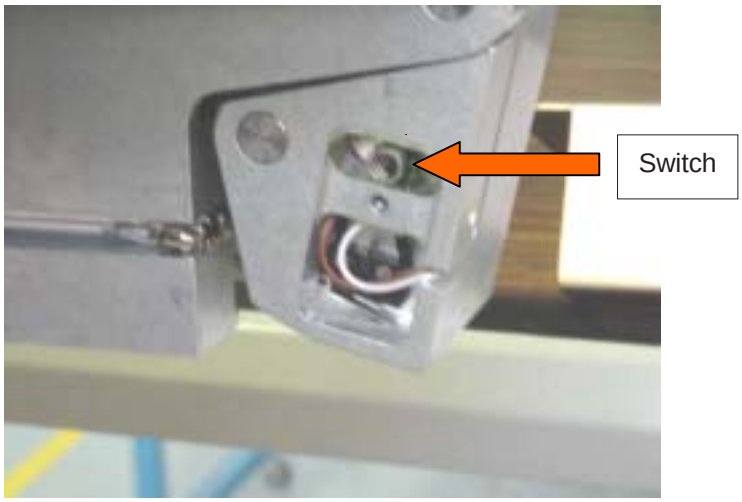


FIG. 5.30 b - Leg support switch replacement

5.3.5 Leg sensor replacement.

NECESSARY TOOLS : allen 2,5
allen 3
allen 4

TIME : 30'

- Level the table.
- Switch OFF the table.
- Switch the mains OFF and remove the batteries fuse.
- Remove the seat plate (see 5.3.1).
- Remove the seat plastic cover.
- Remove the 6 lower screws of the top column plastic cover and lower the column covers.
- Remove the cursor from the rod of the left leg cylinder.
- Remove the wire protection cover.
- Disconnect the sensor from the mother board (P73 connector) then remove the leg sensor.
- Reverce procedure to re-install the sensor then adjust the level (see 6.1) .

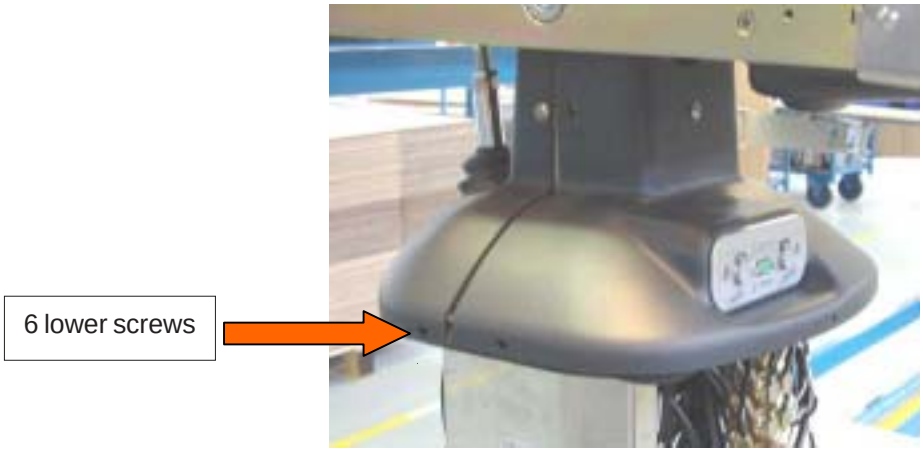


FIG. 5.31 a - Leg sensor replacement

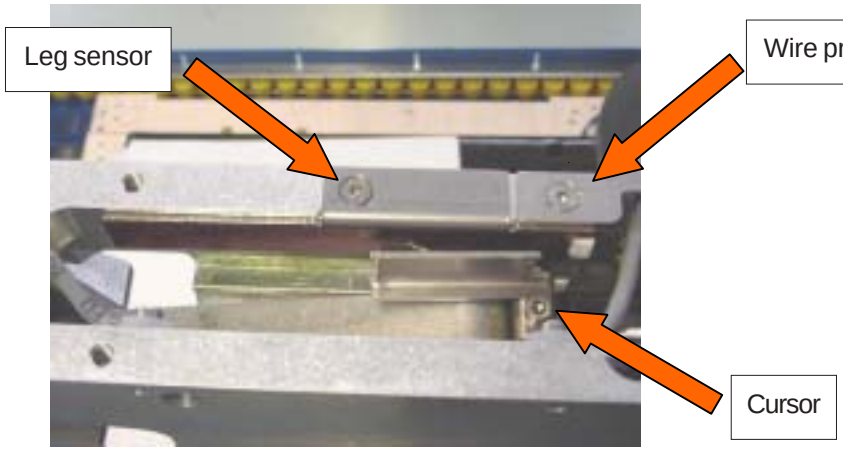


FIG. 5.31 b - Leg sensor replacement

5.3.6 Leg cylinder replacement.

NECESSARY TOOLS : allen 2,5
allen 4
torque wrench set at 12Nm
box 14

TIME : 30'

- Level the table.
- Remove the leg support.
- Remove the nozzle cover.
- Remove the seat section plate.
- Remove the kidney cylinder (see 5.3.7)
- Remove the kidney cylinder bracket.
- Remove the sensor wiper (only for left side)
- Loose the shaft locking screw then remove the shaft.
- Loose the fastening screw of the botton cylinder.
- Unscrew the botton cylinder attachment.
- Disconnect the hydraulical connection.
- Push the cylinder to the foot side then remove it.
- Reverce procedure to re-install the cylinder.
- Up/down the leg support several time to check the oil leakage, then adjust the level (see 6.1) .

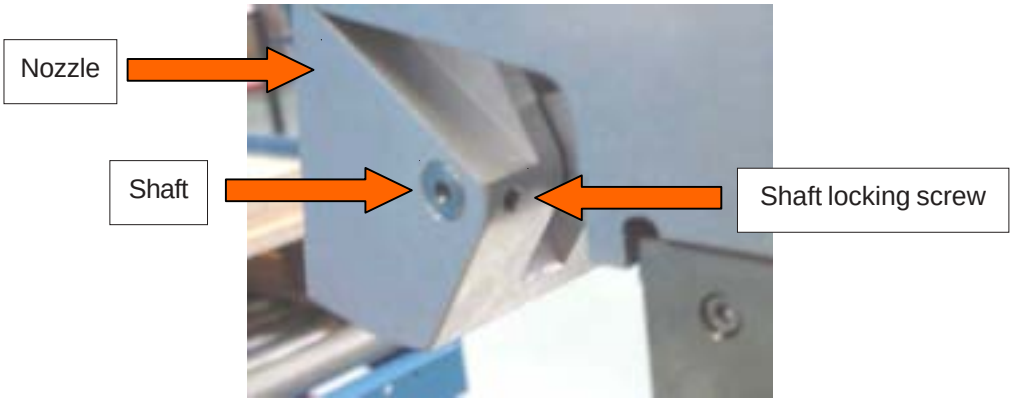


FIG. 5.32 a - Leg cylinder replacement

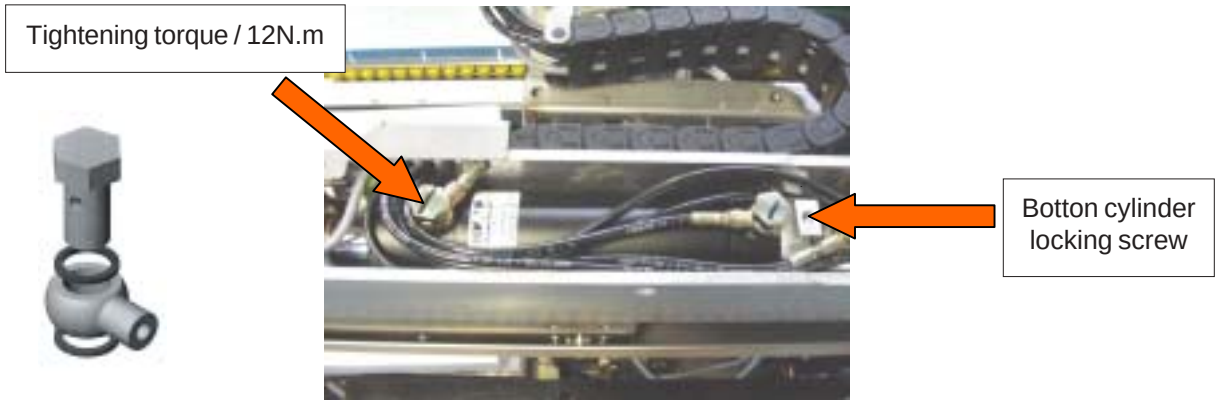


FIG. 5.32 b - Leg cylinder replacement

5.3.7 Kidney cylinder replacement.

NECESSARY TOOLS : allen 2
allen 3
allen 4
allen 6
torque wrench set at 12Nm
socket 12

TIME : 30'

- Level the table.
- Remove the seat section plate and the kidney plate.
- Remove the accessory rail then remove the top cover.
- Unscrew the 2 fastening shafts.
- Disconnect the hydraulical connection.
- Remove the cylinder with all mecanichal parts.
- Unscrew the cylinder from the mecanical parts rod.
- Reverse procedure to re-install the cylinder.
- Up/down the kidney several time to check the oil leakage and check the kidney status on the hand control.

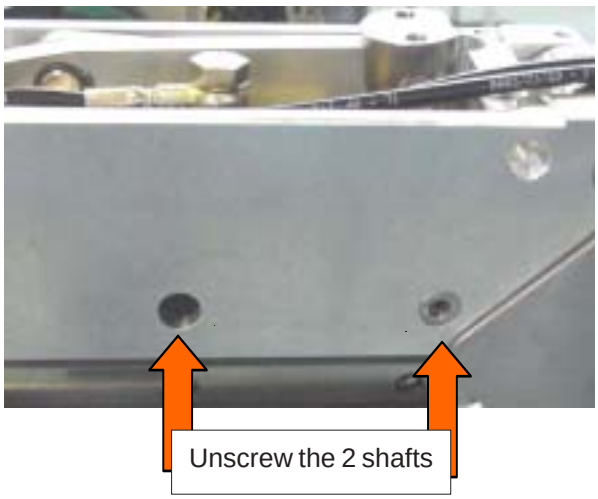


FIG. 5.33 a - Kidney cylinder replacement

Tightening torque : 12N.m

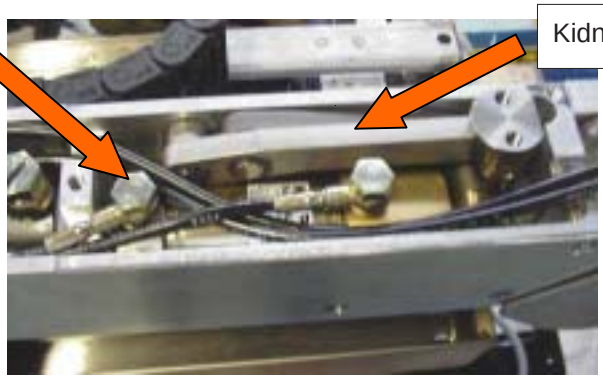


FIG. 5.33 b - Kidney cylinder replacement

5.3.8 Kidney switch replacement.

NECESSARY TOOLS : allen 2
allen 2,5
allen 3
allen 4

TIME : 30'

- Level the table, slide head maximum and raise the kidney to maximun.
- Switch OFF the table.
- Switch the mains off and remove the batteries fuse.
- Remove the seat section plate.
- Remove the seat plastic cover.
- Remove the accessory rail then remove the top cover.
- Remove the wire protection cover.
- Disconnect the switch from the mother board (P77 connector) then remove the kidney switch.
- Reverse procedure to re-install the switch then check the switch status on the hand control .

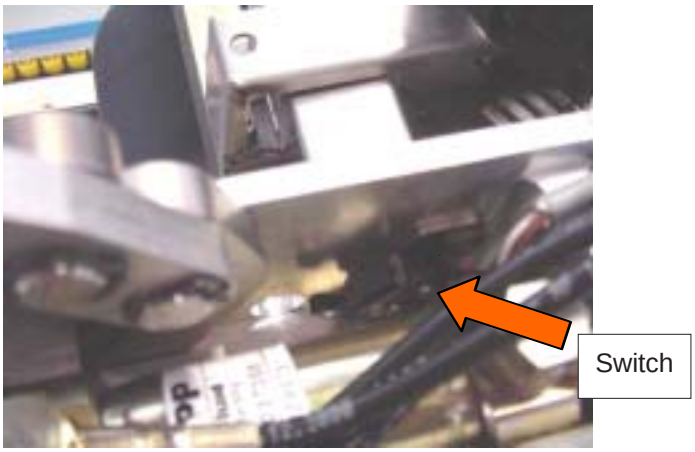


FIG. 5.34 a - Kidney switch replacement

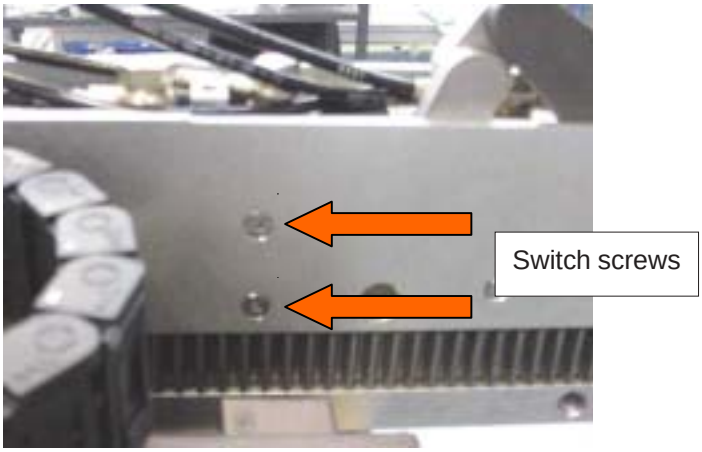


FIG. 5.34 b - Kidney switch replacement

5.3.9 Seat plastic cover replacement.

NECESSARY TOOLS : allen 2,5
allen 3
allen 4

TIME : 10'

- Level the table, slide head maximum.
- Remove the seat section plate.
- Unscrew the 4 top screws and the 4 side screws (foot side and head side) of the seat plastic cover.
- Slide the seat plastic cover to remove it.

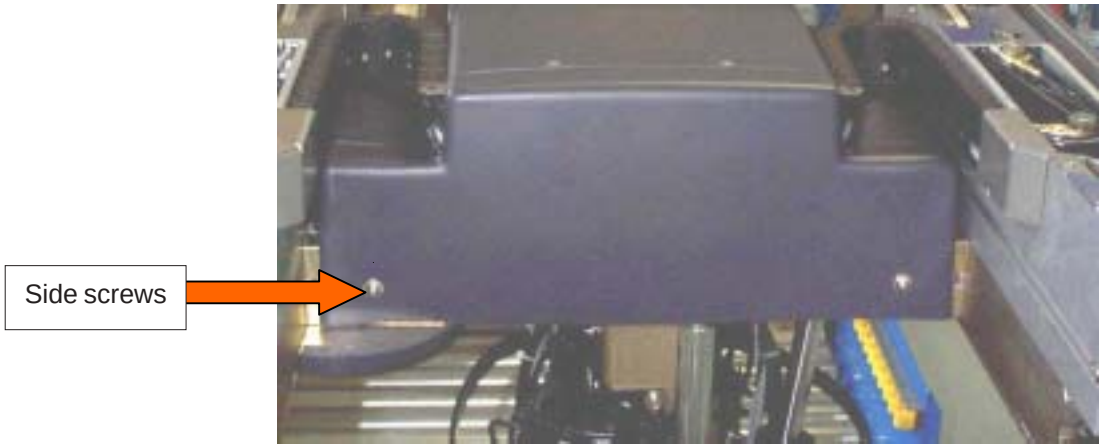


FIG. 5.35 a - Seat plastic cover replacement

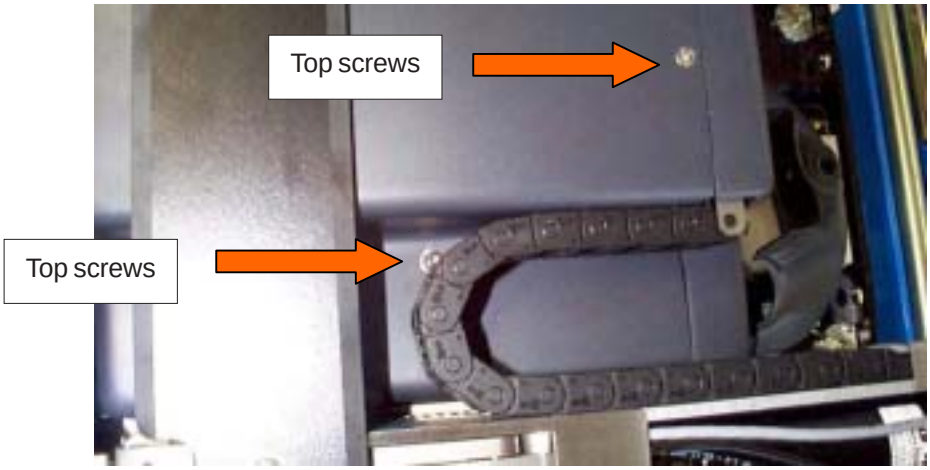


FIG. 5.35 b - Seat plastic cover replacement

5.3.10 Trend sensor replacement.

NECESSARY TOOLS : allen 2,5
allen 3
allen 4

TIME : 30'

- Level the table, slide head maximum.
- Switch off the table.
- Switch the mains OFF and remove the batteries fuse.
- Remove the seat section plate.
- Unscrew the 4 top screws and the 4 side screws (foot side and head side) of the seat plastic cover (see 5.3.9).
- Remove the seat plastic cover.
- Remove the trend sensor and disconnect it.
- Reverse procedure to re-install the trend sensor then adjust the level (see 6.1).

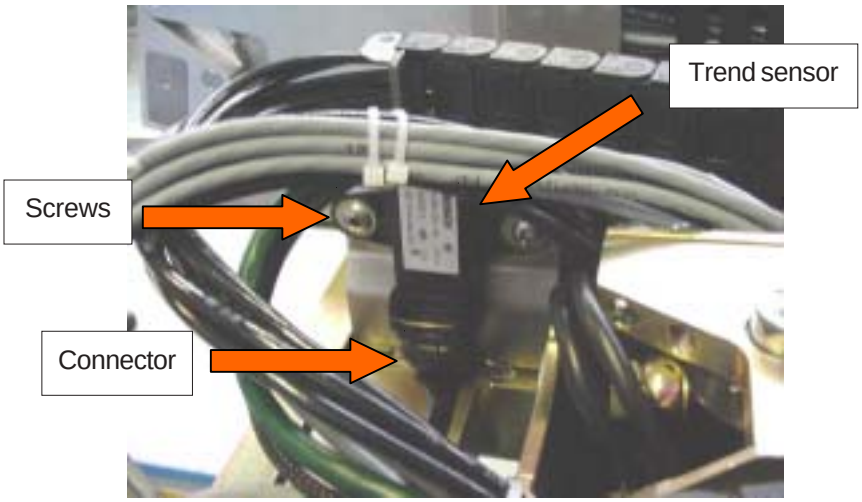


FIG. 5.36 - Trend sensor replacement

5.3.11 Tilt sensor replacement.

NECESSARY TOOLS : allen 2,5
allen 3
allen 4

TIME : 30'

- Level the table, slide head maximum.
- Switch OFF the table.
- Switch the mains off and remove the batteries fuse.
- Remove the seat section plate.
- Unscrew the 4 top screws and the 4 side screws (foot side and head side) of the seat plastic cover (see 5.3.9).
- Remove the seat plastic cover.
- Disconnect the tilt sensor and remove it.
- Reverse procedure to re-install the tilt sensor then adjust the level (see 6.1).

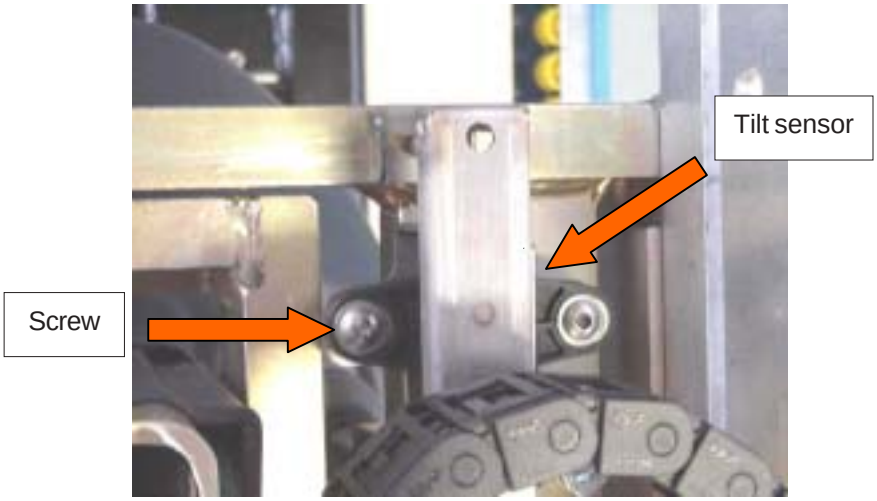


FIG. 5.37 - Tilt sensor replacement

5.3.12 Sliding sensor replacement.

NECESSARY TOOLS : allen 2,5
allen 3
allen 4

TIME : 30'

- Level the table, slide head maximum.
- Switch OFF the table.
- Turn the mains off and remove the batteries fuse.
- Remove the seat section plate.
- Unscrew the 4 top screws and the 4 side screws (foot side and head side) of the seat plastic cover (see 5.3.9).
- Remove the seat plastic cover.
- Unscrew the cable from the left end of the seat section.
  NOTE : Do not allow cable to retract unrestricted.
- Unscrew the 2 fastening screws.
- Disconnect the sliding sensor from the mother board (P76 connector).
- Reverse procedure to re-install the sliding sensor then adjust the level (see 6.1).

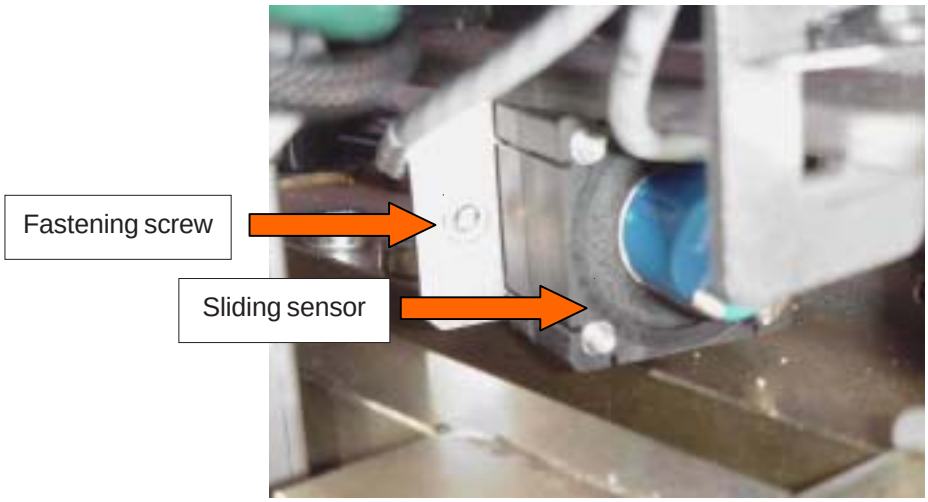


FIG. 5.38 - Sliding sensor replacement

5.3.13 Sliding power board replacement.

NECESSARY TOOLS : allen 2,5
allen 3
allen 4

TIME : 30'

- Level the table, slide head maximum.
- Switch off the table.
- Turn the mains OFF and remove the batteries fuse.
- Remove the seat section plate.
- Unscrew the 4 top screws and the 4 side screws (foot side and head side) of the seat plastic cover (see 5.3.9).
- Remove the seat plastic cover.
- Disconnect the motor and the sliding power board.
- Unscrew the 2 fastening screws of the board.
- Unscrew the fastening screw (head side) of the cover bracket just, loose the foot side screw and remove the board.
- Reverse procedure to re-install the sliding power board then adjust the level (see 6.1).
- Slide several time the table top and check the way.

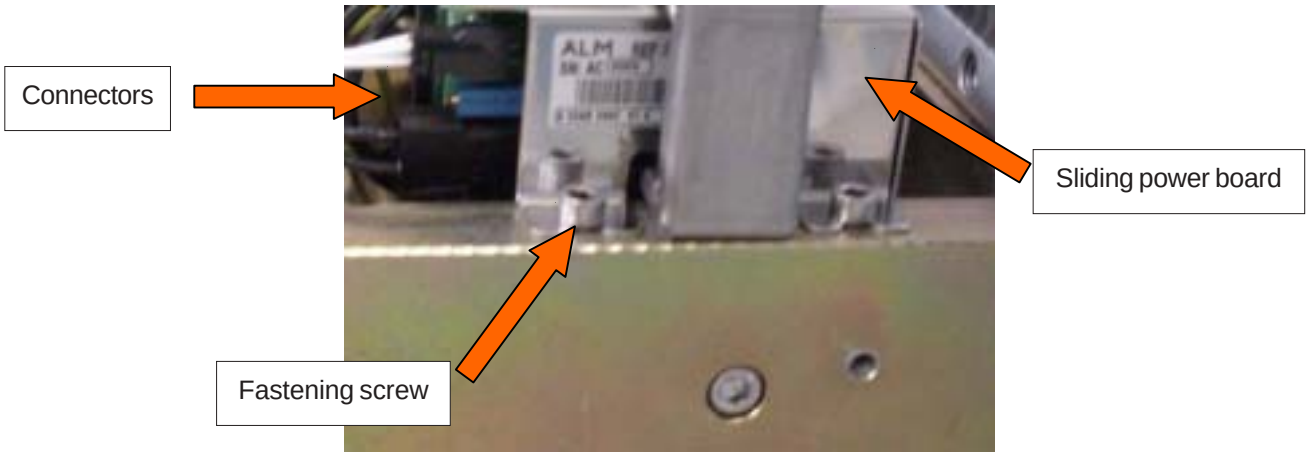


FIG. 5.39 a - Sliding power board replacement

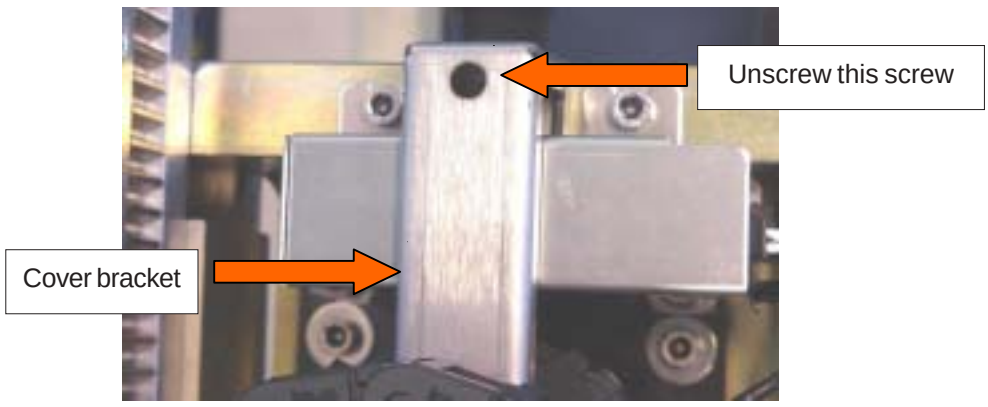


FIG. 5.39 b - Sliding power board replacement

5.3.14 Sliding motor replacement.

NECESSARY TOOLS : allen 2,5
allen 3
allen 4

TIME : 45'

- Level the table, slide head maximum.
- Switch off the table.
- Turn the mains OFF and remove the batteries fuse.
- Remove the seat section plate.
- Unscrew the 4 top screws and the 4 side screws (foot side and head side) of the seat plastic cover (see 5.3.9).
- Remove the seat plastic cover.
- Remove the chain plastic cover.
- Remove the cover bracket above the motor.
- Disconnect the motor.
- Remove the 3 fastening screw of the motor support.
- Remove the chain tension screw and remove the chain from the motor gear.
- Remove the sliding motor.
- Reverse procedure to re-install the sliding power board then adjust the level (see 6.1).
  NOTE : Do not tight too much the chain.

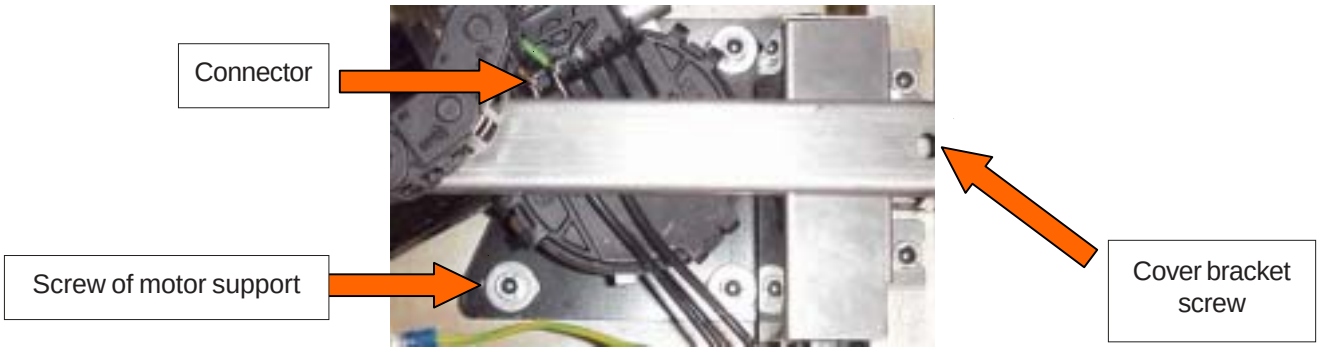


FIG. 5.40 a - Sliding motor replacement

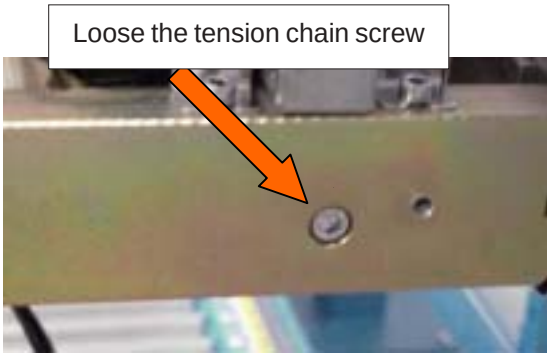


FIG. 5.40 b - Sliding motor replacement

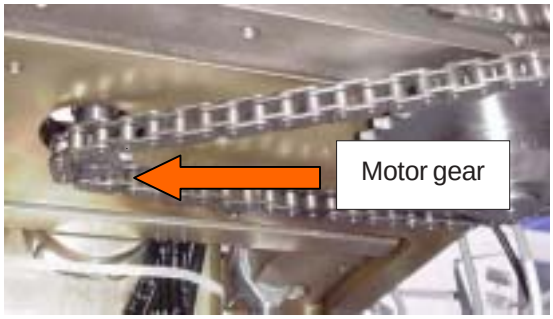


FIG. 5.40 c - Sliding motor replacement

5.4 Component of the back section.

5.4.1 Back rest top plate replacement.

NECESSARY TOOLS : allen 4

TIME : 5’

- Remove the 12 fastening screws.
- Remove the seat plate.

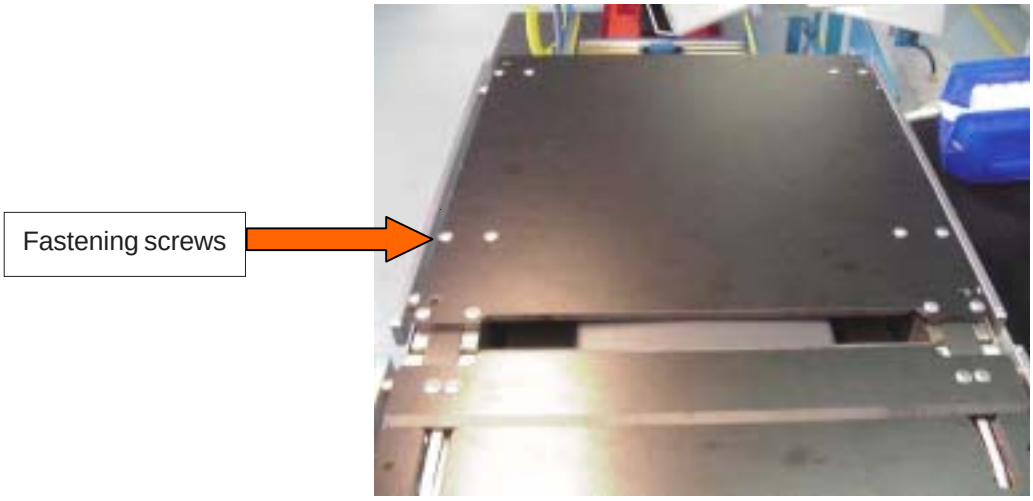


FIG. 5.41 - Back rest top plate replacement

5.4.2 Back rest cylinder replacement.

NECESSARY TOOLS : allen 2,5
allen 4
allen 6
torque wrench set at 12Nm
socket 14

TIME : 45'

- Level the table.
- Remove the seat and the kidney plate, the accessory rail and the side cover.
- Raise the back to 75°.
- Remove the back rest top plate.
- Shift the wire and hose protection cap from the right side (only for the right side) (see FIG 5.43 b).
- Remove the cursor from the end of the cylinder rod (only for the right side) (see FIG 5.43 b).
- Loose the shaft locking screw then remove the shaft. Warning : the back is free and can drop.
- Loose the fastening screw of the bottom cylinder shaft then remove the shaft.
- Disconnect the hydraulical connection.
- Slide the cylinder to the seat side then remove it.
- Reverse procedure to re-install the cylinder.
- Up/down the back several time to check the oil leakage, then adjust the level (see 6.1).

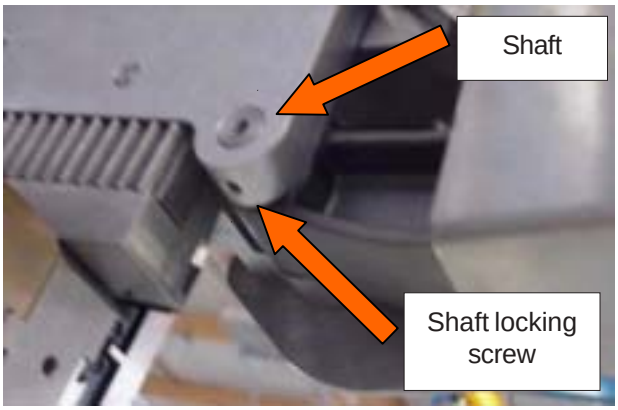


FIG. 5.42 a - Back rest cylinder replacement

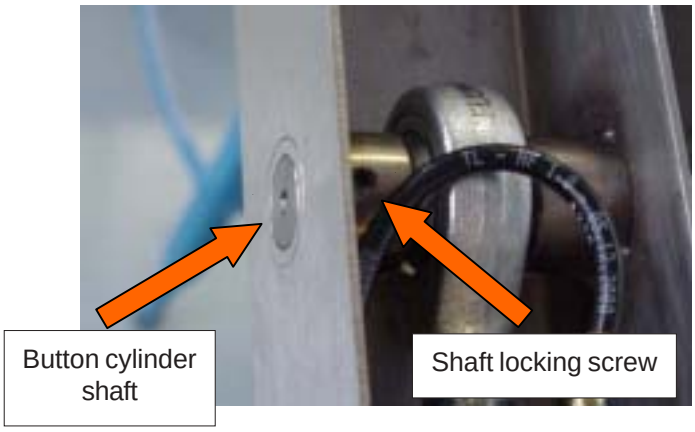


FIG. 5.42 b - Back rest cylinder replacement

FIG. 5.42 c - Back rest cylinder replacement

5.4.3 Back rest sensor replacement.

NECESSARY TOOLS : allen 2,5
allen 4
allen 6

TIME : 45'

- Level the table, slide head maximum.
- Switch off the table.
- Turn the mains OFF and remove the batteries fuse.
- Remove the seat and the kidney plate, the accessory rail and the side cover.
- Remove the back rest top plate.
- Remove the seat plastic cover.
- Remove the 6 lower screws of the top column plastic cover and lower the column covers.
- Remove the seat wire protection cover.
- Remove the wire and hose protection cap from the right side (see FIG 5.43 b).
- Remove the wiper from the end of the cylinder rod.
- Disconnect the sensor from the mother board (P74 connector) then remove the back sensor.
- Reverse procedure to re-nstall the sensor then adjust the level (see 6.1)

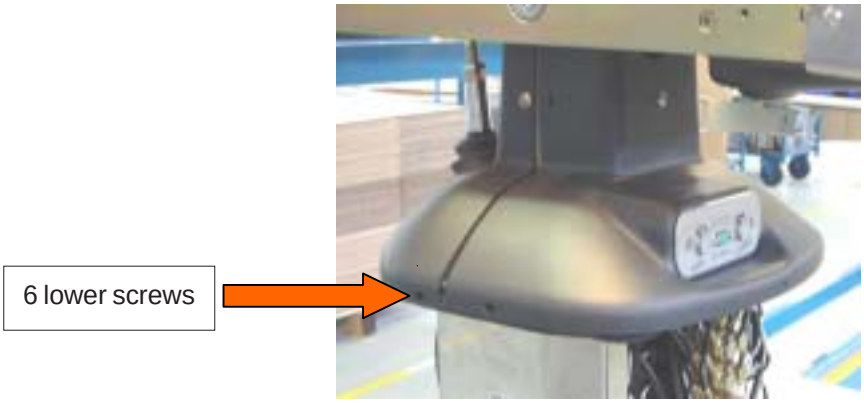


FIG. 5.43 a - Back rest sensor replacement

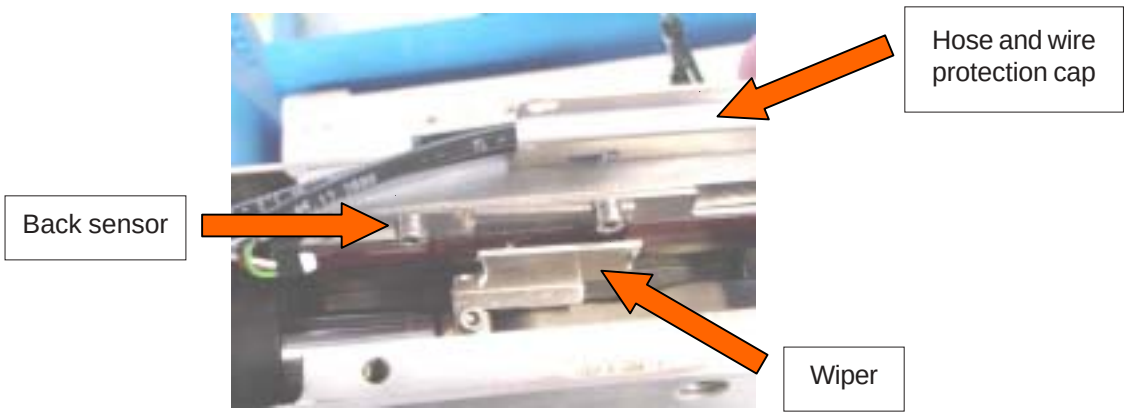


FIG. 5.43 b - Back rest sensor replacement

5.5 Components of the leg support.

5.5.1 Leg support top plate replacement.

NECESSARY TOOLS : allen 4

TIME : 5’

- Level the table.
- Unscrew the 8 fastening screws.
- Remove the leg plate.
- Proceed backwards for re-installing the plate.

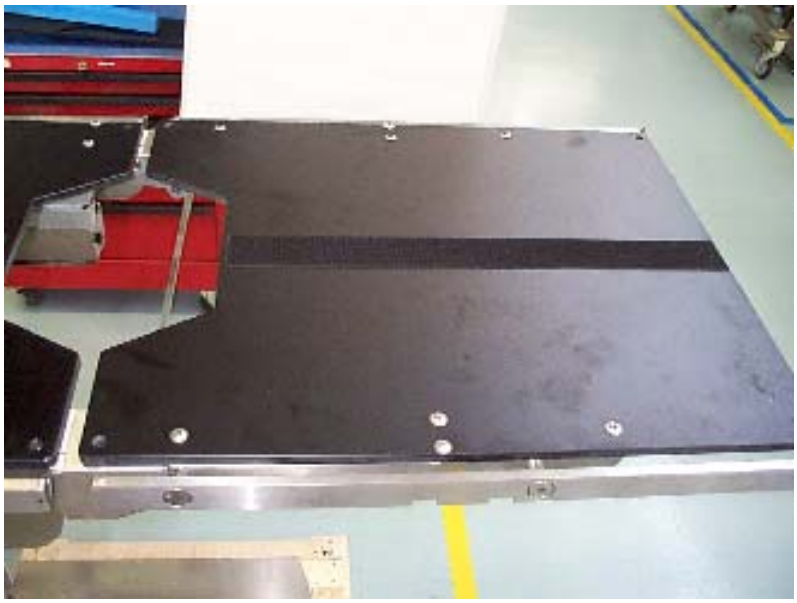


FIG. 5.44 - Leg support top plate replacement

5.5.2 Leg support locking device replacement.

NECESSARY TOOLS : allen 4
allen 3
puncher 3

TIME : 20'

- Level the table.
- Unscrew the 8 fastening screws of the leg section top plate.
- Remove the leg top plate.
- Remove the screws of the handle.
- Unscrew the spring stop then remove the pin.
- Remove the lock.
- Reverse procedure to re-install the locking device.

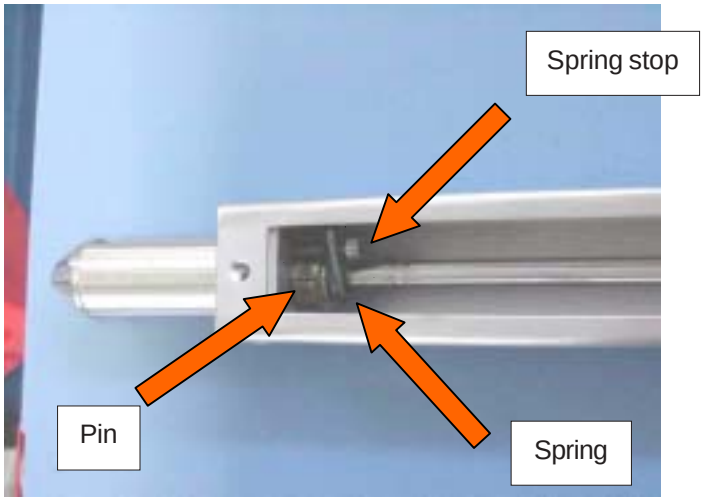


Fig. 5.45 - Leg support locking device replacement

5.6 Component of headrest.

5.6.1 Headrest locking device replacement.

NECESSARY TOOLS : allen 4

TIME : 5'

- Level the table.
- Unscrew the 8 fastening screws of the head section plate then remove the plate.
- Remove the head section accessory rail.
- Unscrew the side screw and underne a the screw.
- Remove the locking device block.

6 - Adjustement procedure.

6.1 Level adjustment.

TIME : 15'

- Switch on the table.
- Press simultaneously the level and the Rev. Orient button of the hand control.
- Check on the display : ADJUST MODE, the Rev. Orient led must be switch off.
- Press Rev. Orient to validate, the message LEVEL ADJ is displayed.
- Level the table top : tilt and trend 0°, leg 0°, back 0° and align the slide frame with the tilt frame (even) on the foot side of the table.
- Press Rev. Orient to validate.
- Set all movements in the following order and press Rev. Orient to valid each maximum position.
  TILT L : tilt maximun left then press Rev. Orient to validate.
  TILT R : tilt maximun right then press Rev. Orient to validate.
  TREND MAX : trend maximun then press Rev. Orient to validate.
  R TREND MAX : reverse trend maximun then press Rev. Orient to validate.
  LEG DWN MAX : down the leg maximun then press Rev. Orient to validate.
  LEG UP MAX : raise the leg maximun then press Rev. Orient to validate.
  BACK D MAX : down the back rest maximun then press Rev. Orient to validate.
  BACK U MAX : raise the back rest maximun then press Rev. Orient to validate.
  SLIDE H MAX : slide head maximum then press Rev. Orient to validate.
  SLIDE F MAX : slide foot maximum then press Rev. Orient to validate.
  TABLE D MAX : down the table maximun then press Rev. Orient to validate.
  TABLE U MAX : down the table maximun then press Rev. Orient to validate.

- After the last movement adjustment, press REV Orient to reset the memorized default or press «Level» to quit.
- Check the return to «Level» and the «O» position of the slide.

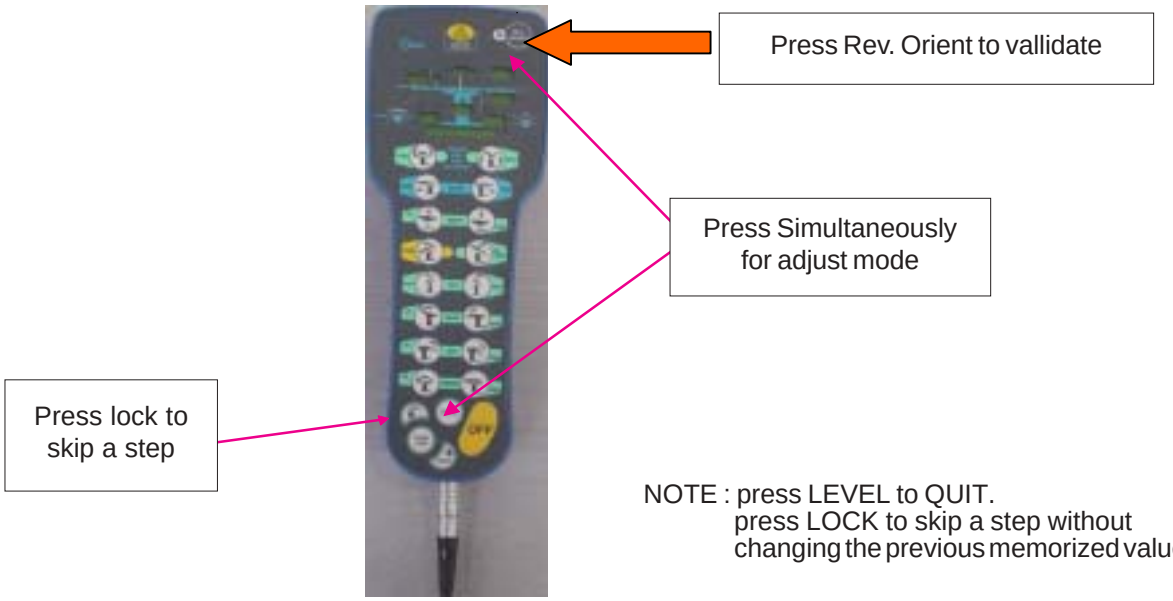

Press Rev. Orient to vallidate
Press Simultaneously for adjust mode
Press lock to skip a step
NOTE : press LEVEL to QUIT.
press LOCK to skip a step without changing the previous memorized value.

FIG. 6.1 - Level adlustement

7 - Drawing and spare parts list.

7.1 Electrical drawing.

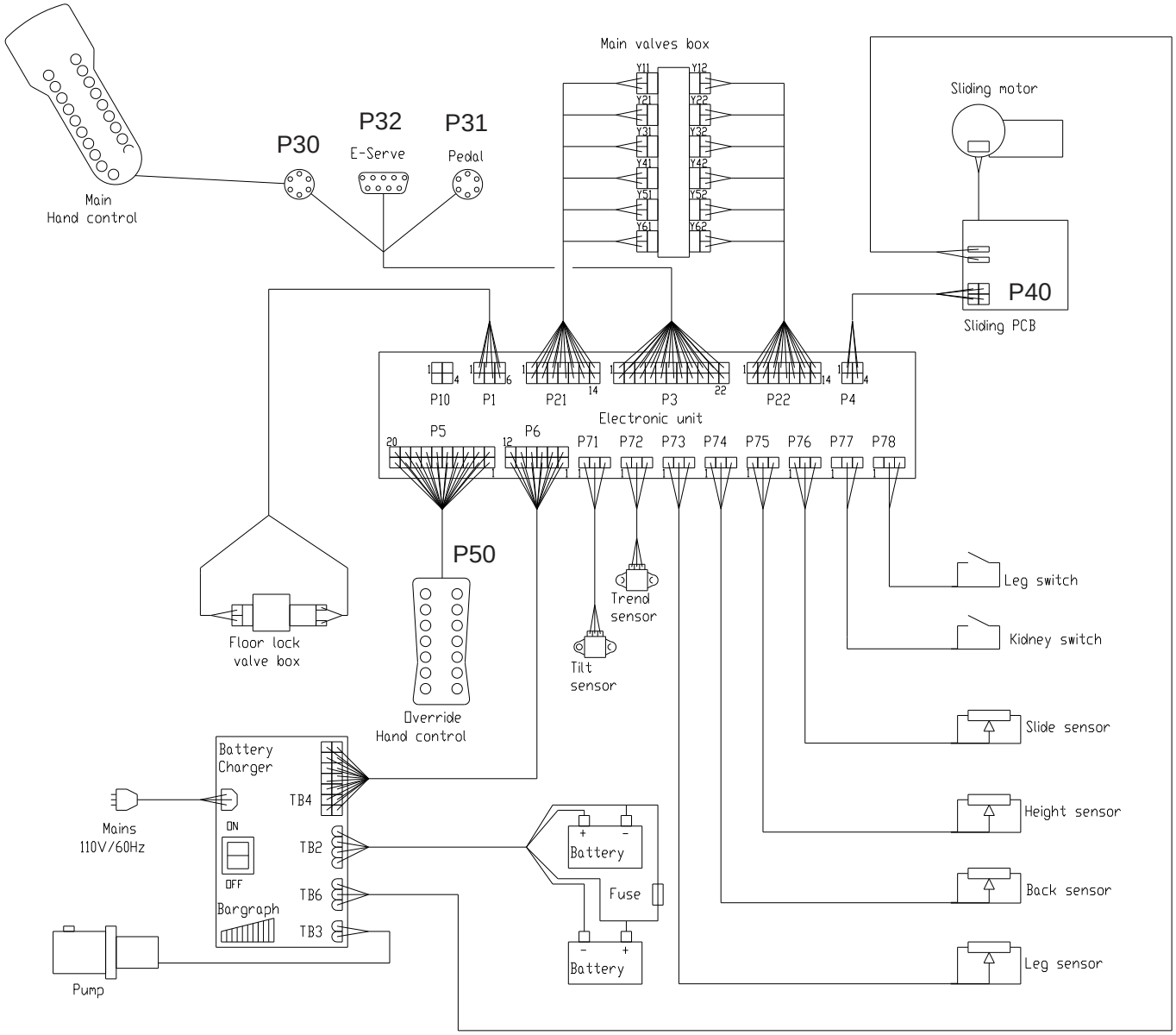


FIG. 7.1 - Electrical drawing

- P1 cable.

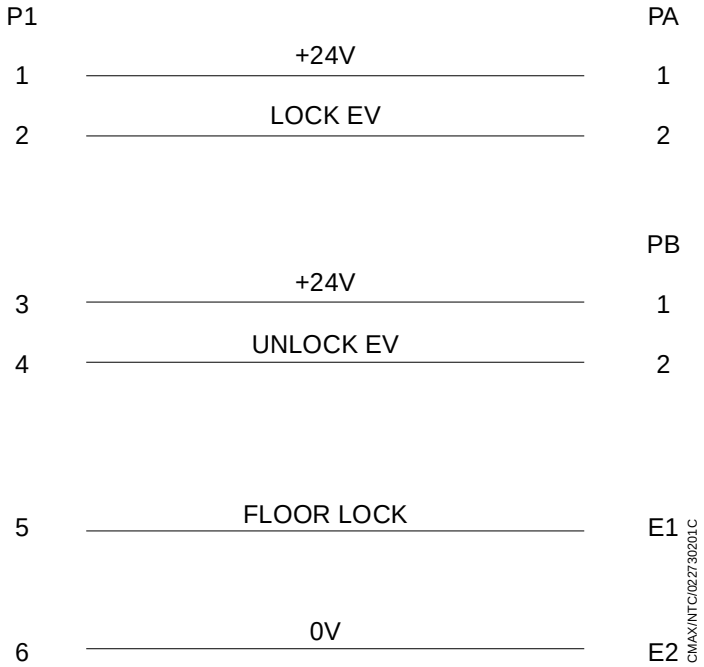


FIG. 7.2 - P1 cable

- P21 cable.

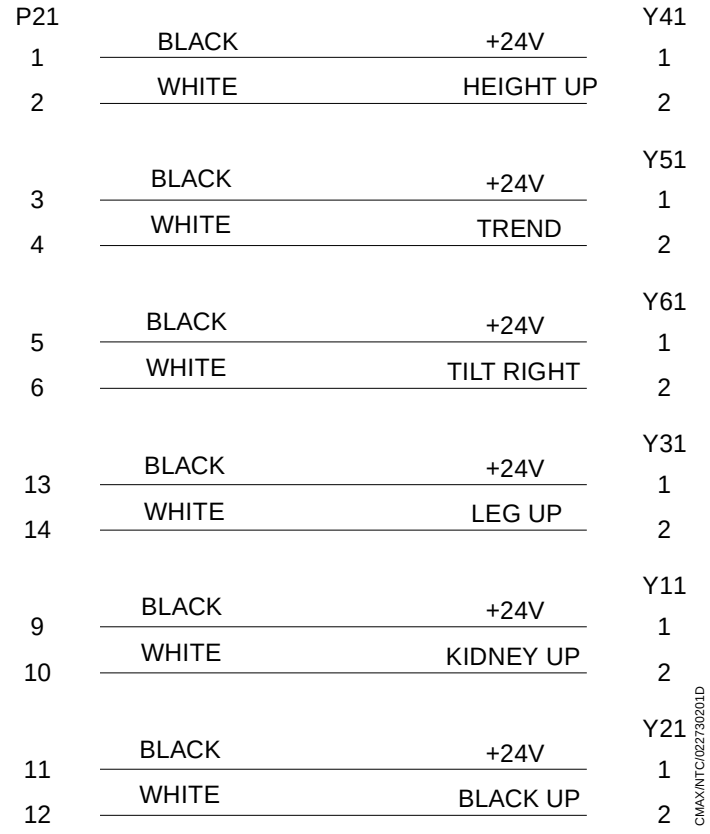


FIG. 7.3 - P21 cable

- P3 cable.

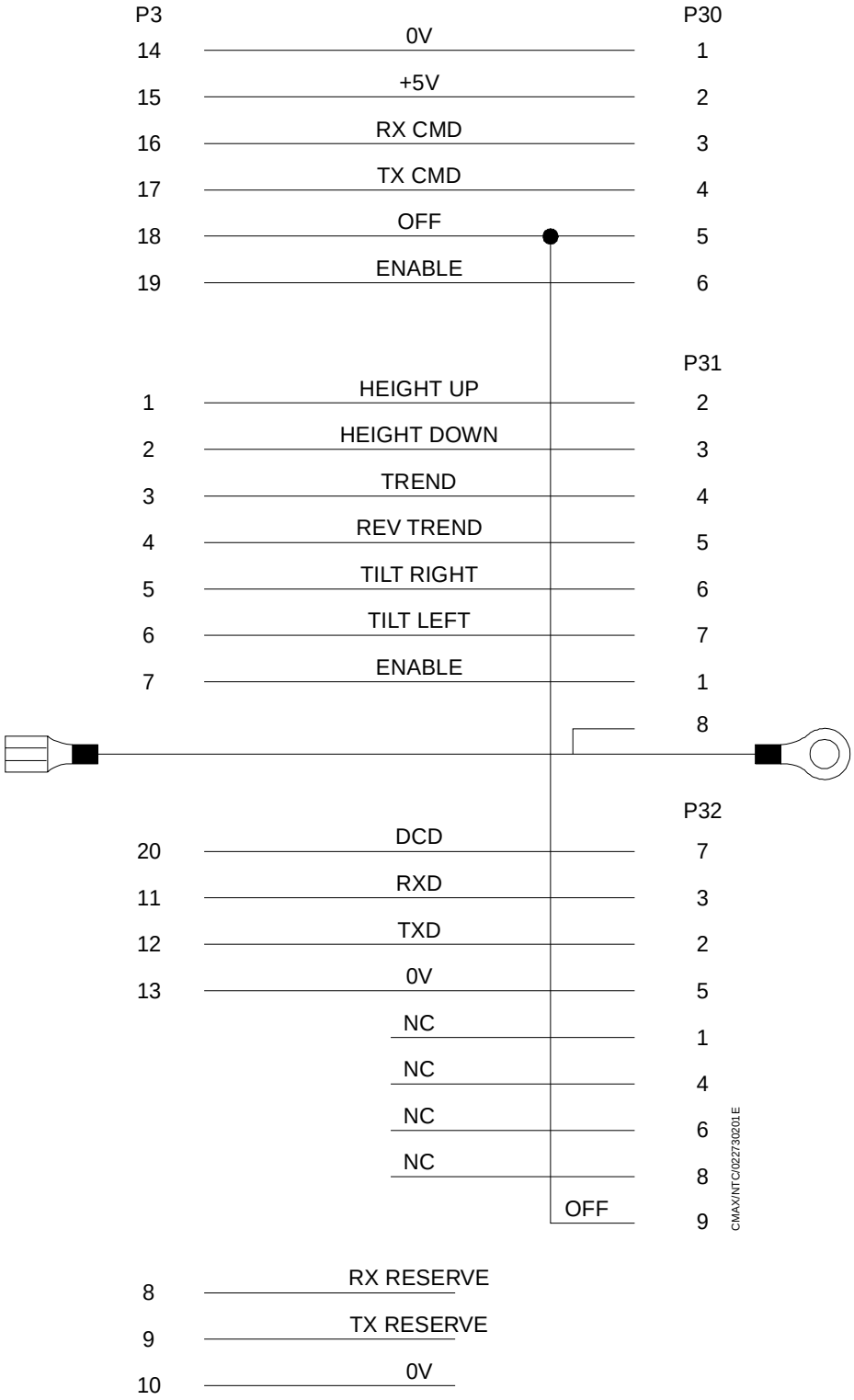


FIG. 7.4 - P3 cable

- P22 cable.

P22			Y42
1	BLACK	+24V	1
2	WHITE	HEIGHT DOWN	2
			Y52
3	BLACK	+24V	1
4	WHITE	REV. TREND	2
			Y62
5	BLACK	+24V	1
6	WHITE	TILT LEFT	2
			Y32
13	BLACK	+24V	1
14	WHITE	LEG DOWN	2
			Y12
9	BLACK	+24V	1
10	WHITE	KINDEY DOWN	2
			Y22
11	BLACK	+24V	1
12	WHITE	BACK DOWN	2

CMAX/NTC/022730201F

FIG. 7.5 - P22 cable

- P4 cable.

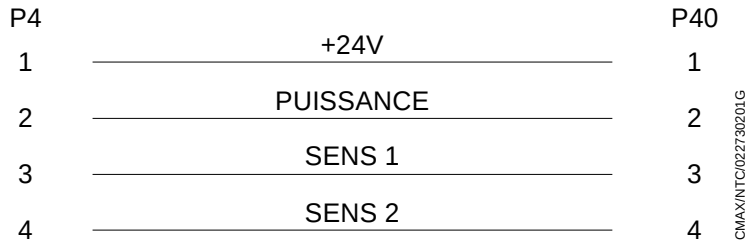


FIG. 7.6 - P4 cable

- P5 cable.

FIG. 7.7 - P5 cable

- P6 cable.

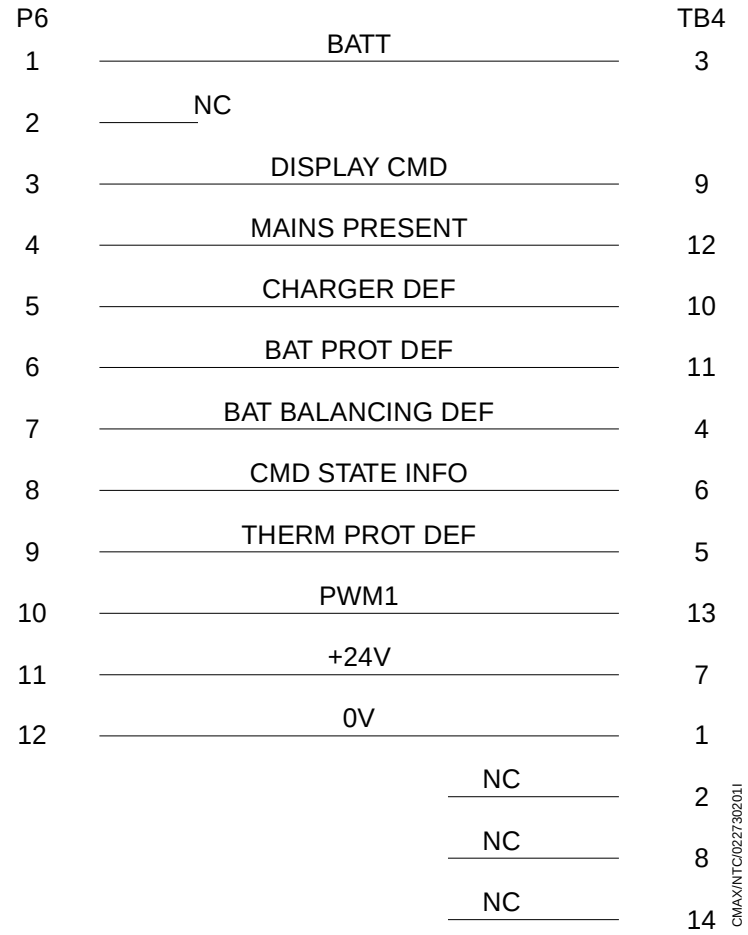


FIG. 7.8 - P6 cable

- P71 cable.

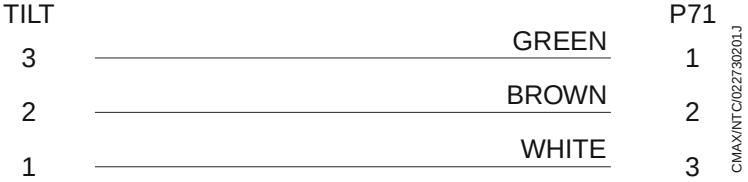


FIG. 7.9 - P71 cable

- P72 cable.

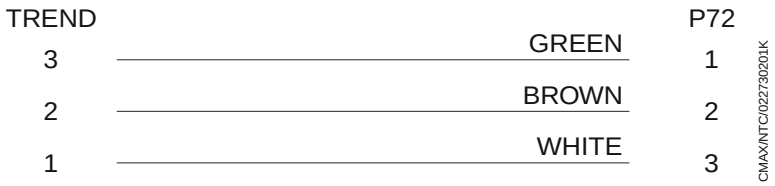


FIG. 7.10 - P72 cable

- P77 cable.

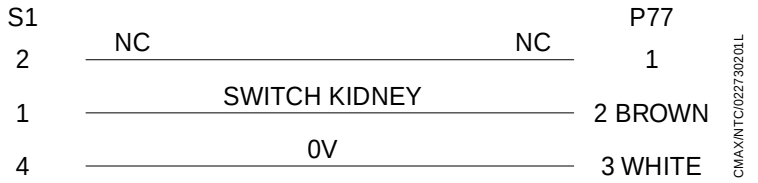


FIG. 7.11 - P77 cable

- P78 cable.

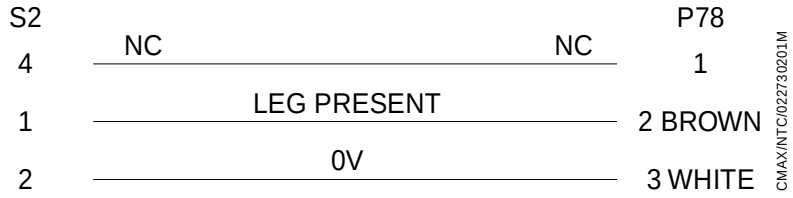


FIG. 7.12 - P78 cable

- TB2 cable.

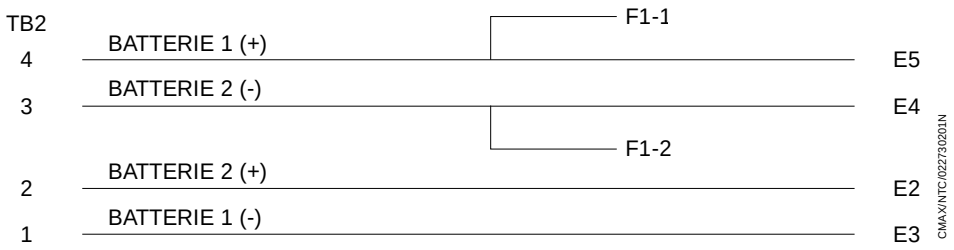


FIG. 7.13 - TB2 cable

CMAX NTR - 01B

- TB6 cable.

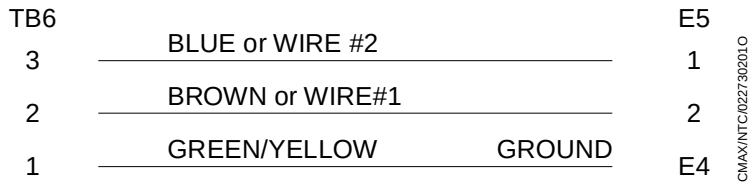


FIG. 7.14 - TB6 cable

- Hand control cable.

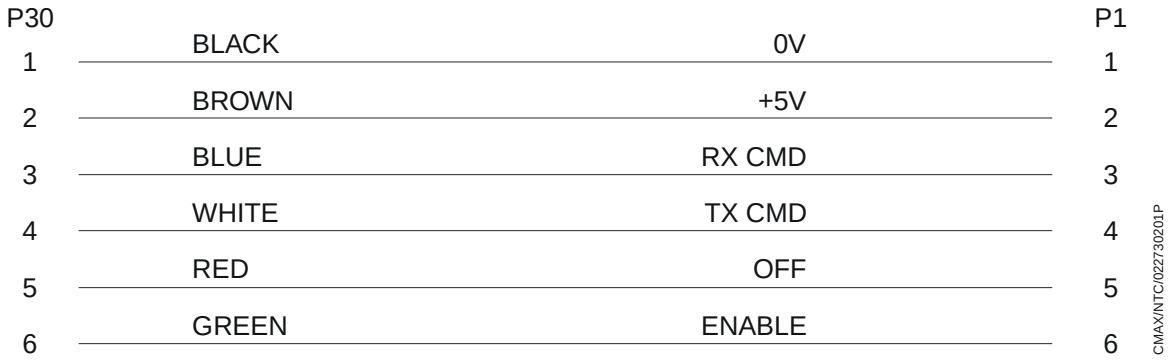


FIG. 7.15 - Hand control cable

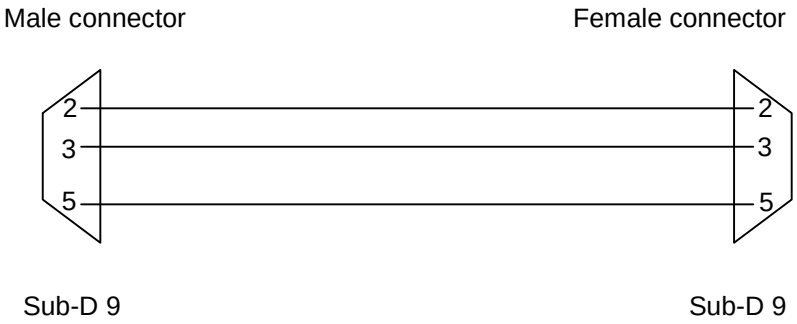


FIG. 7.16 - E-serve connection cable

NOTE : The wires # 4 and # 9 must be cut.

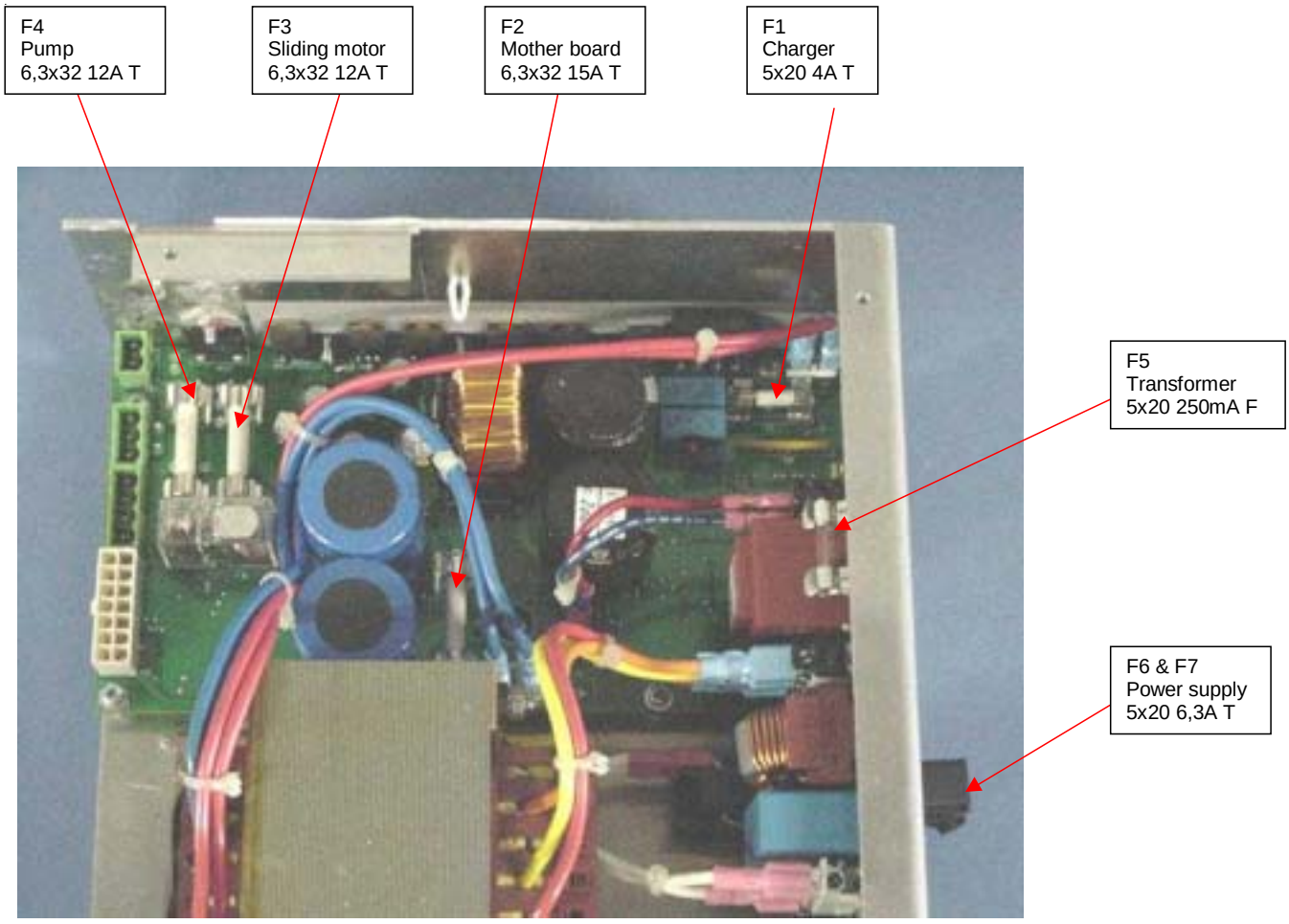


FIG 7.17 - Battery charger

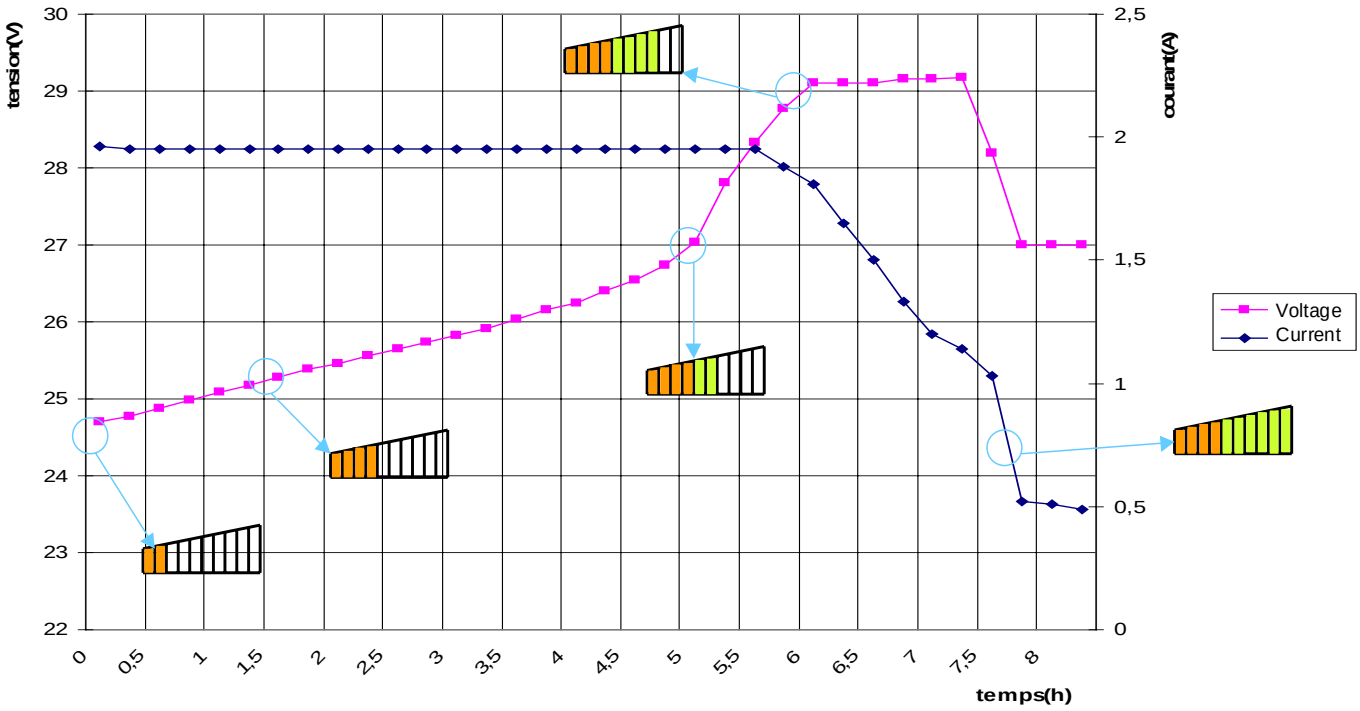


FIG 7.18 - Bargraph indication

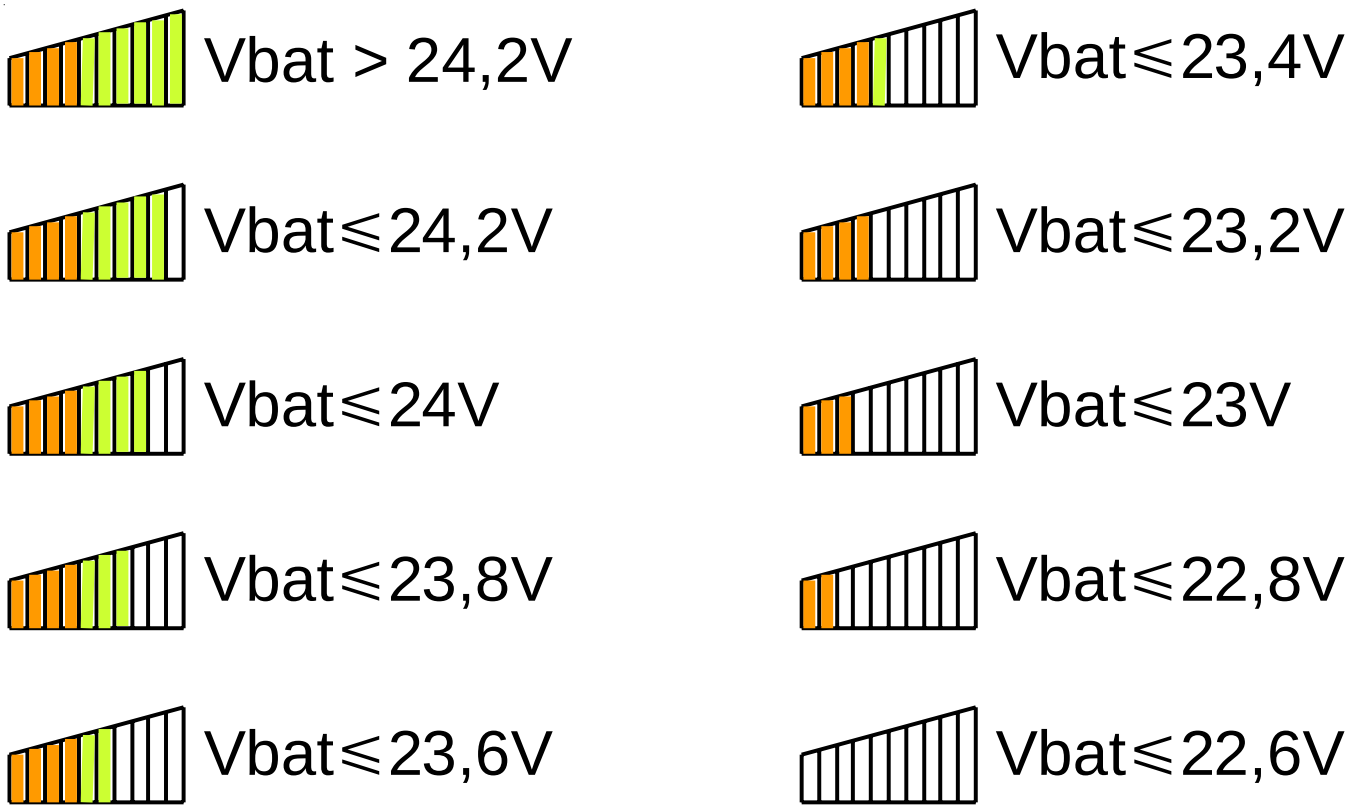


FIG 7.19 - Battery charger indication

7.2 Hydraulic diagram.

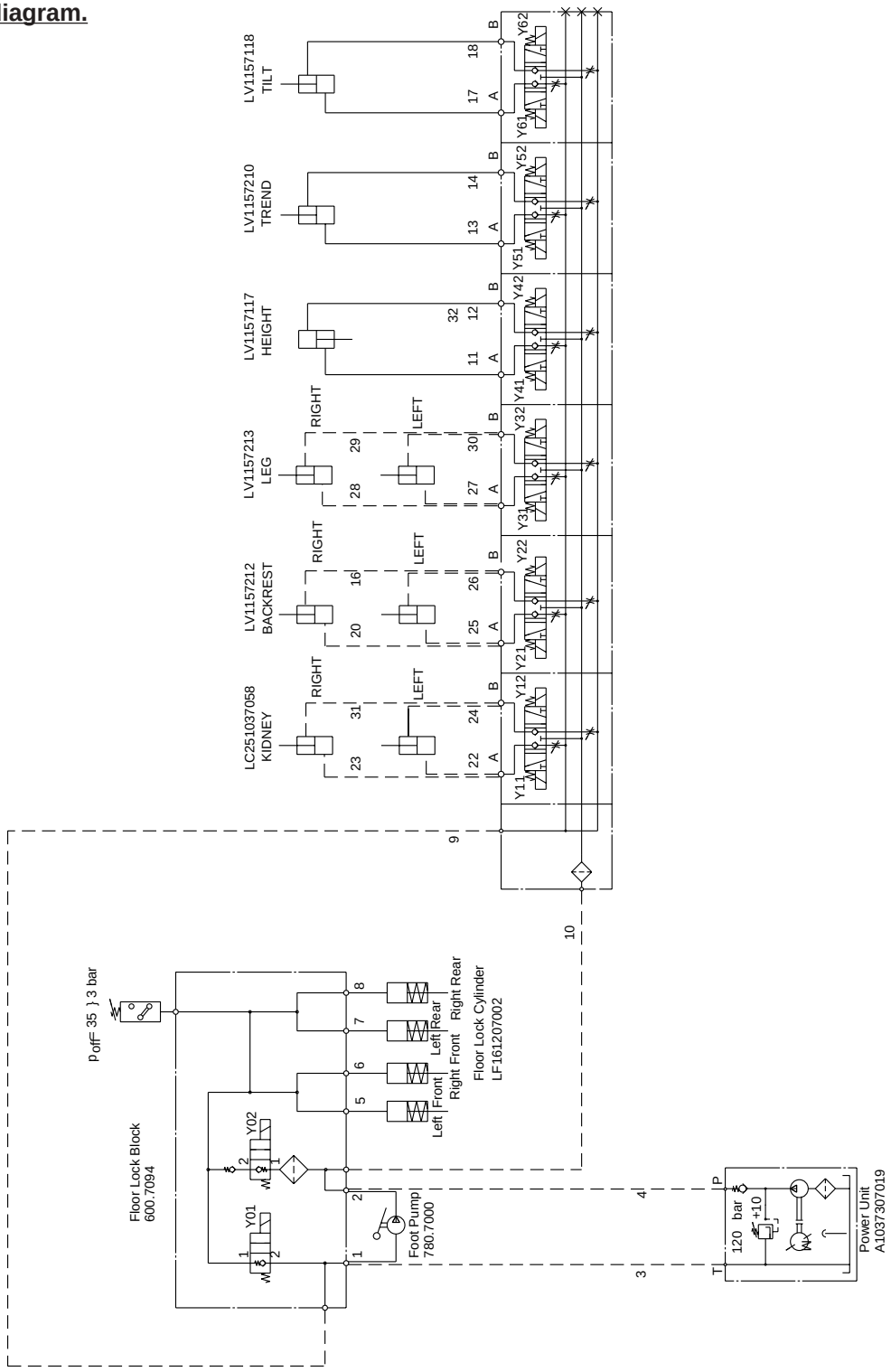


FIG. 7.20 - Hydraulic diagram

NOTE : For solenoïd valve details, see P84.

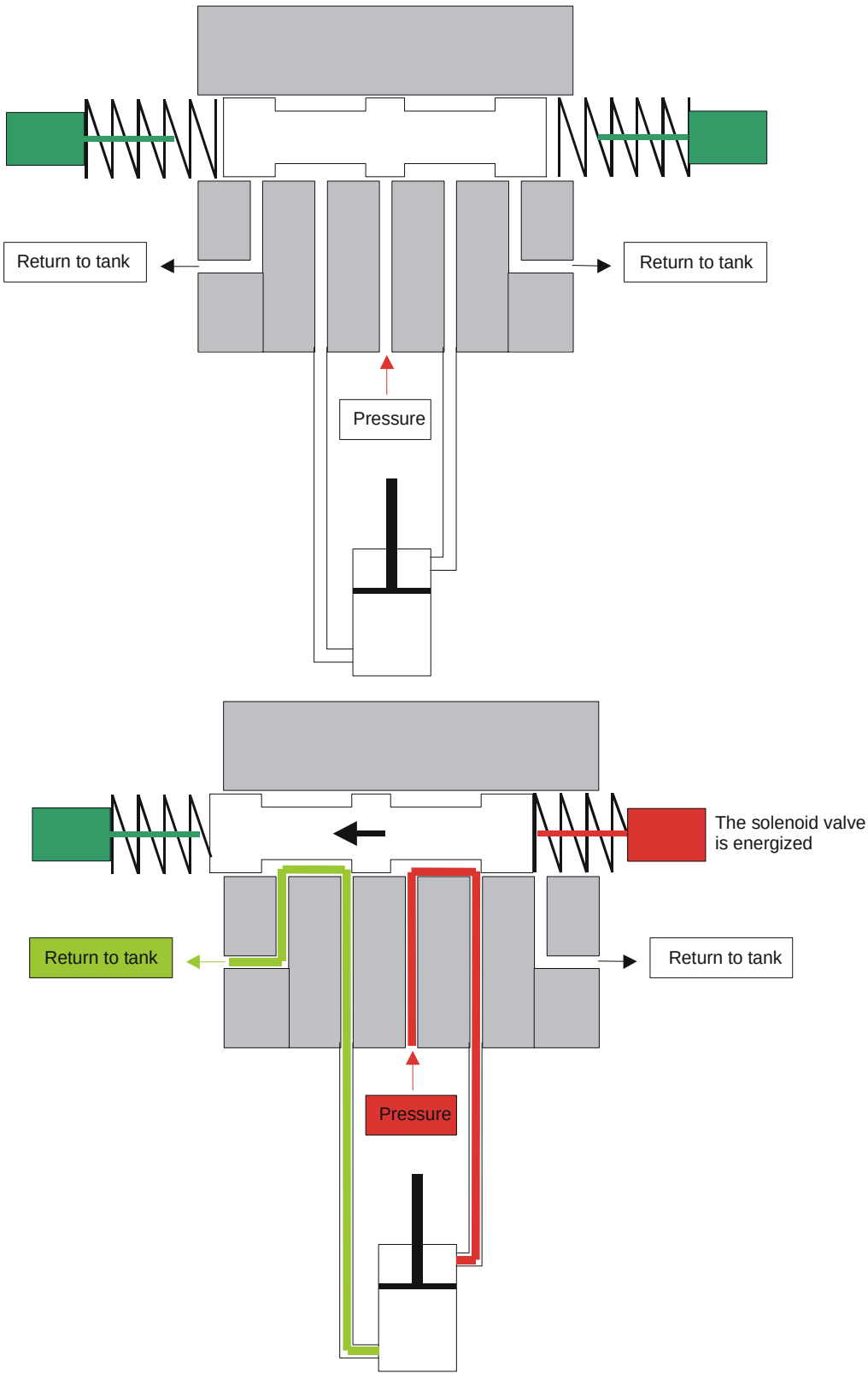
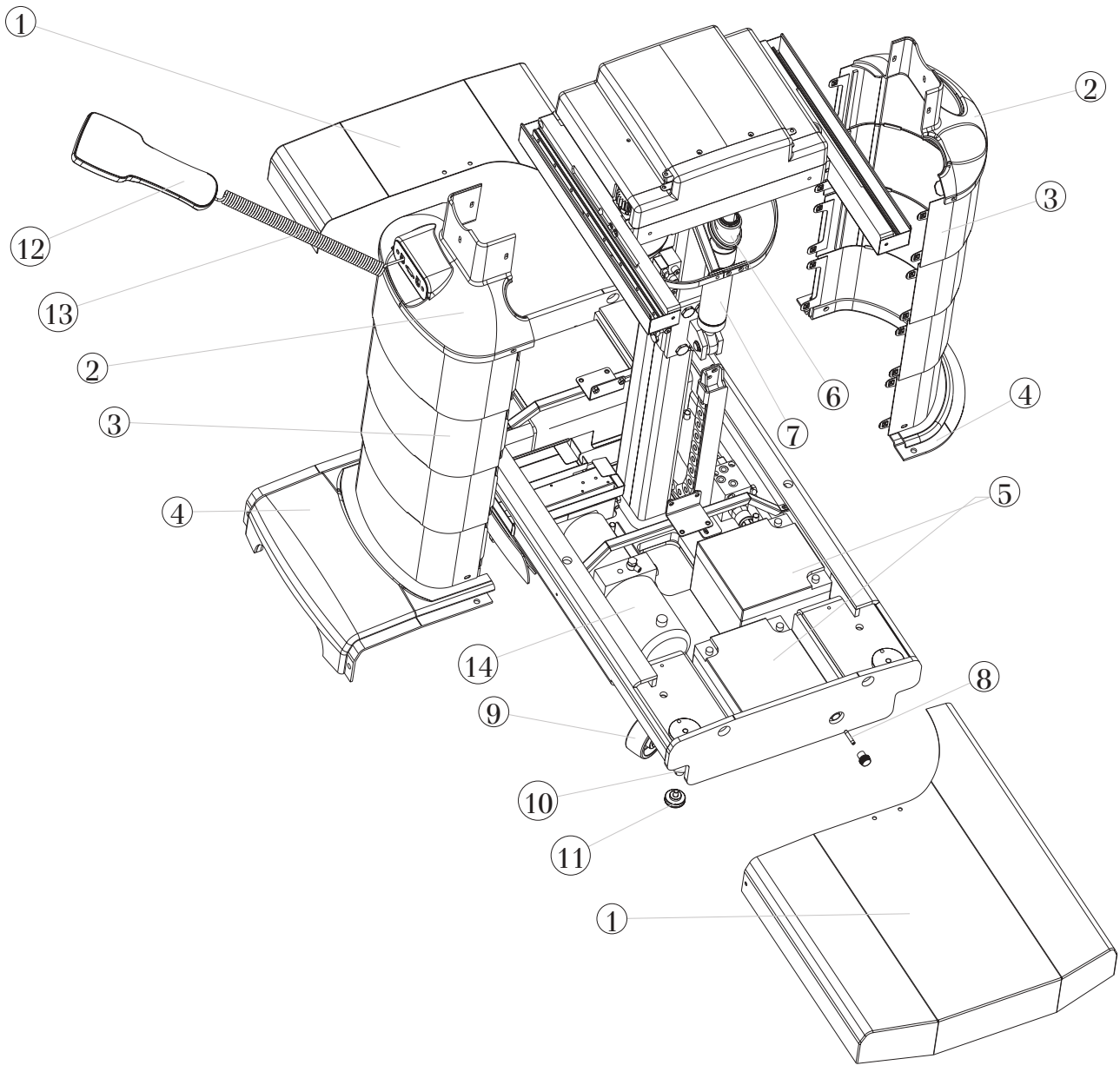


FIG. 7.21 - Solenoide valve details

DRAWINGS AND PART LIST

PARTS LIST 1 **DRAWING 1** **BASE & COLUMN**

Item	Part number	Description	Qty
1	**3 422 10 555**	**Base covers**	**1**
	5 422 00 016	Base cover, head side	1
	5 422 00 017	Base cover, foot side	1
	6 009 90 070	Screw s ULF M5X12	8
2	**3 422 22 555**	**Column, top plastic covers set**	**1**
	5 422 00 266	Plastic covers	1
	6 009 90 070	Screw s ULF M5X12	6
3	**3 422 21 555**	**Column, stainless steel covers set**	**1**
	5 422 00 255	Column, low cover	1
	5 422 00 256	Column, intermediary low cover	1
	5 422 00 257	Column, intermediary high cover	1
	5 422 00 258	Column, high cover	1
	6 009 90 070	Screw s ULF M5X12	6
4	**3 422 20 555**	**Column, base plastic cover kit**	**1**
	5 422 00 265	Base plastic cover	1
	6 009 90 070	Screw NLF M5X12	8
5	**3 422 12 555**	**Battery set**	**1**
	6 996 00 046	Battery 12 V/24 Ah	2
6	**3 422 27 555**	**Trend billow kit**	**1**
	5 422 00 283	Trend billow	1
	5 422 00 179	Trend billow , plastic ring	1
7	**3 422 23 555**	**Trend cylinder sub-assy**	**1**
	5 422 00 345	Cylinder	1
	6 051 30 008	Hydraulic screw , single w ay	2
	6 279 00 020	Sealing w asher	4
	6 394 01 501	Circlip D16	2
	5 422 00 283	Trend billow	1
	5 422 00 179	Trend billow , plastic ring	1
8	**3 422 13 555**	**Fuse set**	**1**
	6 396 00 038	Mains fuse 6,3 AT	4
	6 396 00 041	Battery fuse 16A	2
	6 396 00 037	Battery charger fuse 250mA F	2
	6 396 00 001	Battery charger fuse 4A T	2
	6 396 00 039	Battery charger fuse 12A T	2
	6 396 00 040	Battery charger fuse 15A T	2
9	**3 422 14 555**	**Casters kit**	**1**
	6 060 00 063	Caster	4
	6 005 41 230	Screw CHC M12X30	4
	6 021 02 712	Flat w asher M12	4
	6 025 81 320	Stop w asher	4
	6 013 81 206	Nut M12	4
10	**3 422 15 555**	**Foot cylinder sub-assy**	**1**
	5 422 00 001	Foot cylinder	1
	5 422 00 043	Pad	1
	6 004 10 816	Screw FHc M8X16	1
	5 422 00 044	Spacer	1
	6 051 30 008	Hydraulic screw , single w ay	1
	6 279 00 020	Sealing w asher	2
11	**3 422 16 555**	**Pad kit**	**1**
	5 422 00 043	Pad	4
	6 004 10 816	Screw FHc M8X16	4
	5 422 00 044	Spacer	4
12	**5 422 00 904**	**Main hand control sub-assy**	**1**
13	**5 422 00 213**	**Main hand control cable**	**1**
14	**3 422 11 555**	**Hydraulic pump**	**1**
	5 422 00 347	Hydraulic pump	1
	6 051 30 009	Hydraulic screw , dual w ay	2
	6 279 00 020	Sealing w asher	6

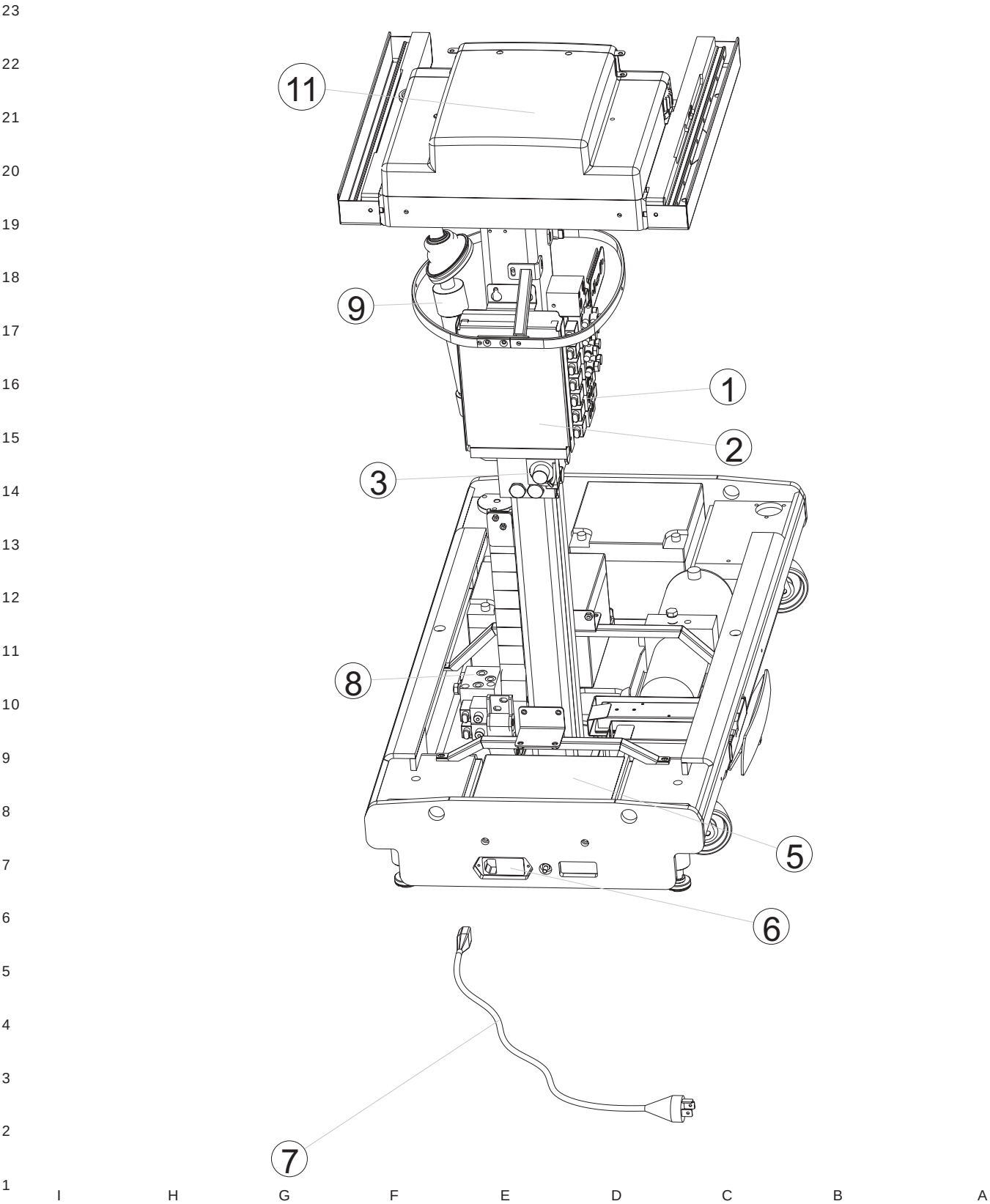


BASE & COLUMN	PLANCHE/DRAWING/LAMINA **1**	
	FHSurgical	
	Modif :	
	Modif :	

CMAX NTR - 01B

PARTS LIST 1 **DRAWING 2** **BASE & COLUMN**

Item	Part number	Description	Qty
1	**3 422 28 555**	**Main valve box sub-assy**	**1**
	5 422 00 348	Main valve box	1
	6 051 30 008	Hydraulic screw, single way	8
	6 051 30 009	Hydraulic screw, dual way	6
	6 279 00 020	Sealing washer	34
2	**5 422 00 903**	**Electronic unit**	**1**
3	**5 422 00 194**	**Up/Down sensor**	**1**
4	**5 422 00 905**	**Override hand control**	**1**
5	**5 422 00 902**	**Power supply/battery charger**	**1**
6	**5 422 13 555**	**Fuse set**	**1**
	6 396 00 038	Mains fuse 6,3 AT	4
	6 396 00 041	Battery fuse 16A	2
	6 396 00 037	Battery charger fuse 250mA F	2
	6 396 00 001	Battery charger fuse 4A T	2
	6 396 00 039	Battery charger fuse 12A T	2
	6 396 00 040	Battery charger fuse 15A T	2
7	**6 894 00 009**	**Mains cable**	**1**
8	**3 422 17 555**	**Floor lock valve box sub-assy**	**1**
	5 422 00 349	Floor lock valve box	1
	6 051 30 008	Hydraulic screw, single way	5
	6 051 30 009	Hydraulic screw, dual way	2
	6 279 00 020	Sealing washer	16
9	**3 422 24 555**	**Tilt cylinder sub-assy**	**1**
	5 422 00 350	Cylinder	1
	6 051 30 008	Hydraulic screw, single way	2
	6 279 00 020	Sealing washer	4
	6 394 01 101	Circlip D12	2
	5 422 00 282	Tilt billow	1
	5 422 00 175	Tilt billow, plastic ring	1
10	**3 422 26 555**	**Tilt billow kit**	**1**
	5 422 00 282	Tilt billow	1
	5 422 00 175	Tilt billow, plastic ring	1
11	**3 422 30 555**	**Seat plastic cover kit**	**1**
	5 422 00 052	Plastic cover	1
	6 009 90 070	Screw ULF M5X12	8

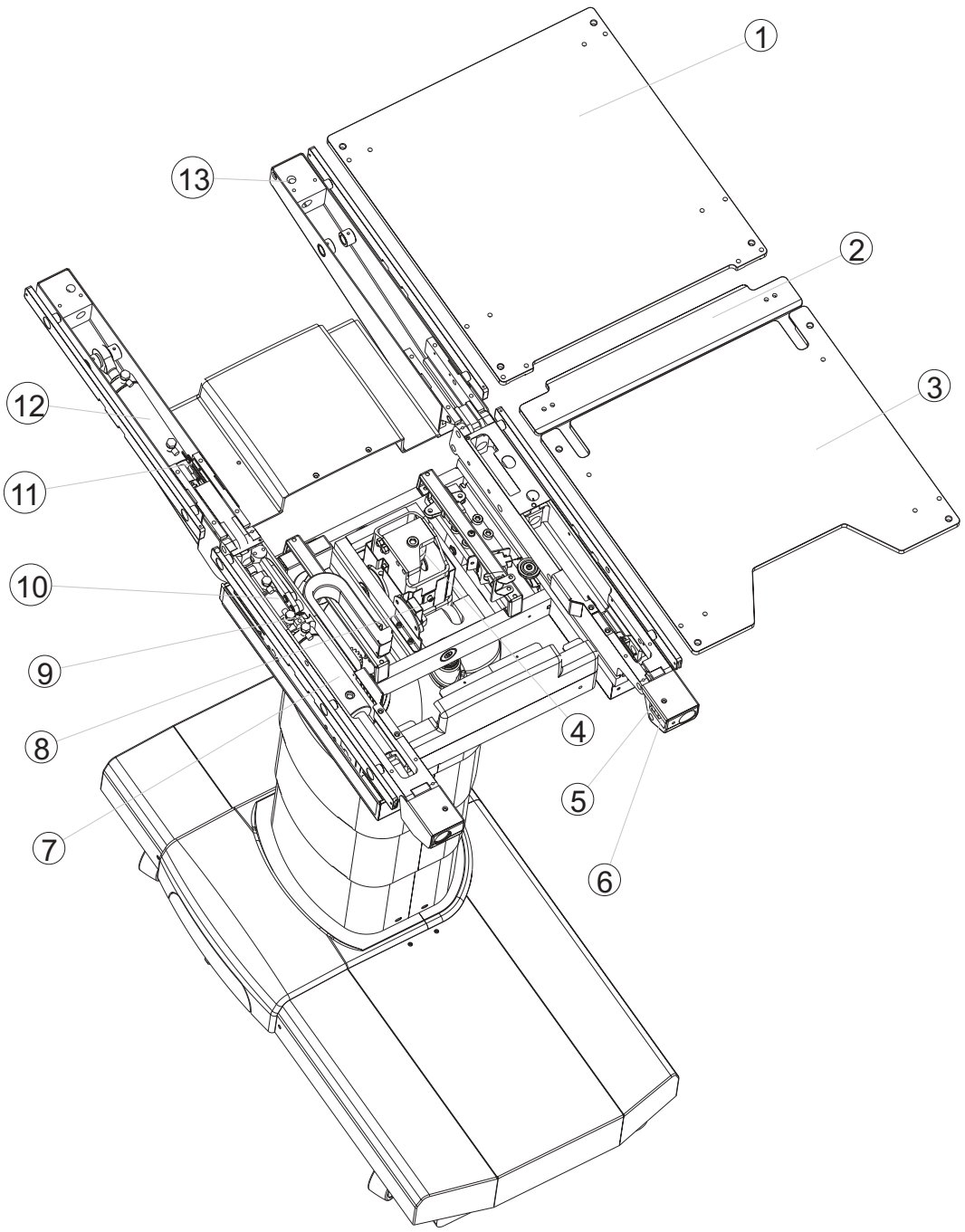


BASE & COLUMN	PLANCHE/DRAWING/LAMINA **2**	
	FHSurgical	
	Modif :	
	Modif :	

CMAX NTR - 01B

PARTS LIST 1 **DRAWING 3** **SEAT & BACKREST**

Item	Part number	Description	Qty
1	**3 422 40 555**	**Back section, table top**	**1**
	5 422 00 066	Back table top	1
	6 009 90 023	Screw ULF M6X20	12
2	**3 422 50 555**	**Kidney section, table top**	**1**
	5 422 00 065	Kidney table top	1
	6 009 90 023	Screw ULF M6X20	4
3	**3 422 60 555**	**Seat section, table top**	**1**
	5 422 00 064	Seat table top	1
	6 009 90 023	Screw ULF M6X20	4
4	**3 422 25 555**	**Up/Down, dylinder sub-assy**	**1**
	5 400 00 352	Up/down cylinder	1
	6 051 30 008	Hydraulic screw, single way	2
	6 279 00 020	Sealing washer	4
5	**3 422 73 555**	**Leg section, locking device kit**	**1**
	5 422 00 029	Lock	1
	6 325 00 055	Spring	1
6	**3 422 74 555**	**Leg section, switch kit**	**1**
	5 422 00 221	Switch	1
	6 000 20 210	Screw TC M2X10	2
7	**3 422 61 555**	**Leg cylinder sub-assy**	**1**
	5 422 00 353	Cylinder	1
	6 051 30 008	Hydraulic screw, single way	2
	6 279 00 020	Sealing washer	4
8	**6 882 00 019**	**Trend sensor**	**1**
9	**3 422 52 555**	**Kidney, switch**	**1**
	5 422 00 220	Switch	1
	6 000 20 210	Screw TC M2X10	2
10	**3 422 51 555**	**Kidney cylinder sub-assy**	**1**
	5 422 00 354	Kidney cylinder	1
	5 422 00 355	Small hydraulic screw, single way	2
	5 422 00 356	Small sealing washer	4
11	**3 422 42 555**	**Back section, sensor**	**1**
	5 422 00 090	Sensor	1
	6 005 30 410	Screw CHc M4X10	2
12	**3 422 41 555**	**Back cylinder sub-assy**	**1**
	5 422 00 357	Cylinder	1
	6 051 30 008	Hydraulic screw, single way	2
	6 279 00 020	Sealing washer	4
13	**3 422 43 555**	**Back section, right locking knob kit**	**1**
	6 490 00 033	knob	1
	6 007 80 820	Screw M8X20	1
	5 422 00 225	Right support	1
13	**3 422 44 555**	**Back section, left locking knob kit**	**1**
	6 490 00 033	Knob	1
	6 007 80 820	Screw M8X20	1
	5 422 00 227	Left support	1

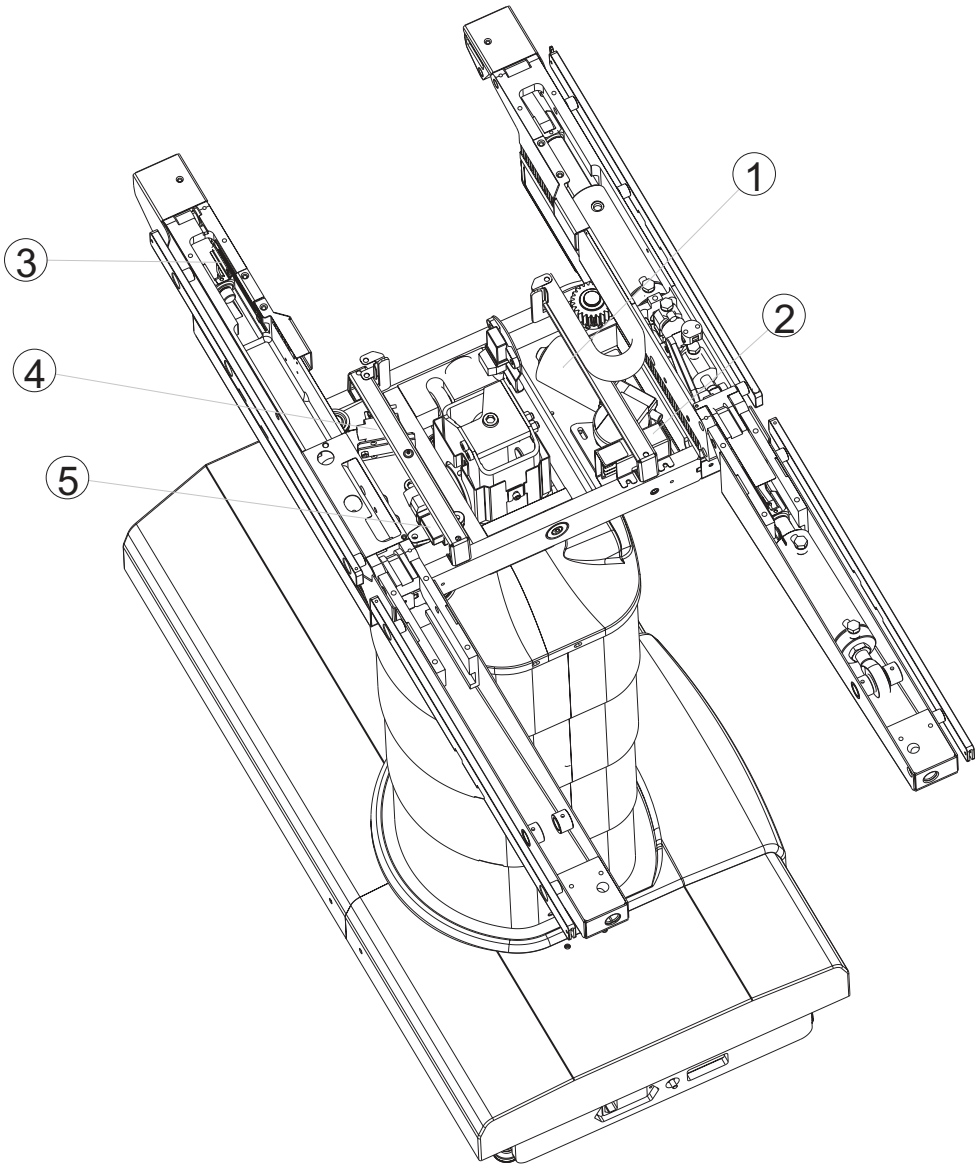


SEAT & BACKREST	PLANCHE/DRAWING/LAMINA **3**
	FHSurgical
	Modif :
	Modif :

CMAX NTR - 01B

PARTS LIST 1 **DRAWING 4** **SEAT**

Item	Part number	Description	Qty
1	**3 422 31 555**	**Sliding motor sub-assy**	**1**
	6 995 00 017	Motor 24V 26W	1
	5 422 00 186	Gear	1
	6 394 09 301	Retaining ring	1
2	**3 422 32 555**	**Sliding power board**	**1**
	5 422 00 180	Power board	1
	6 005 30 510	Screw CHc M5X10	2
3	**3 422 63 555**	**Leg section, sensor**	**1**
	5 422 00 025	Sensor	1
	6 004 10 410	Screw M4X10	1
4	**5 422 00 196**	**Sliding sensor**	**1**
5	**6 882 00 19**	**Tilt sensor**	**1**

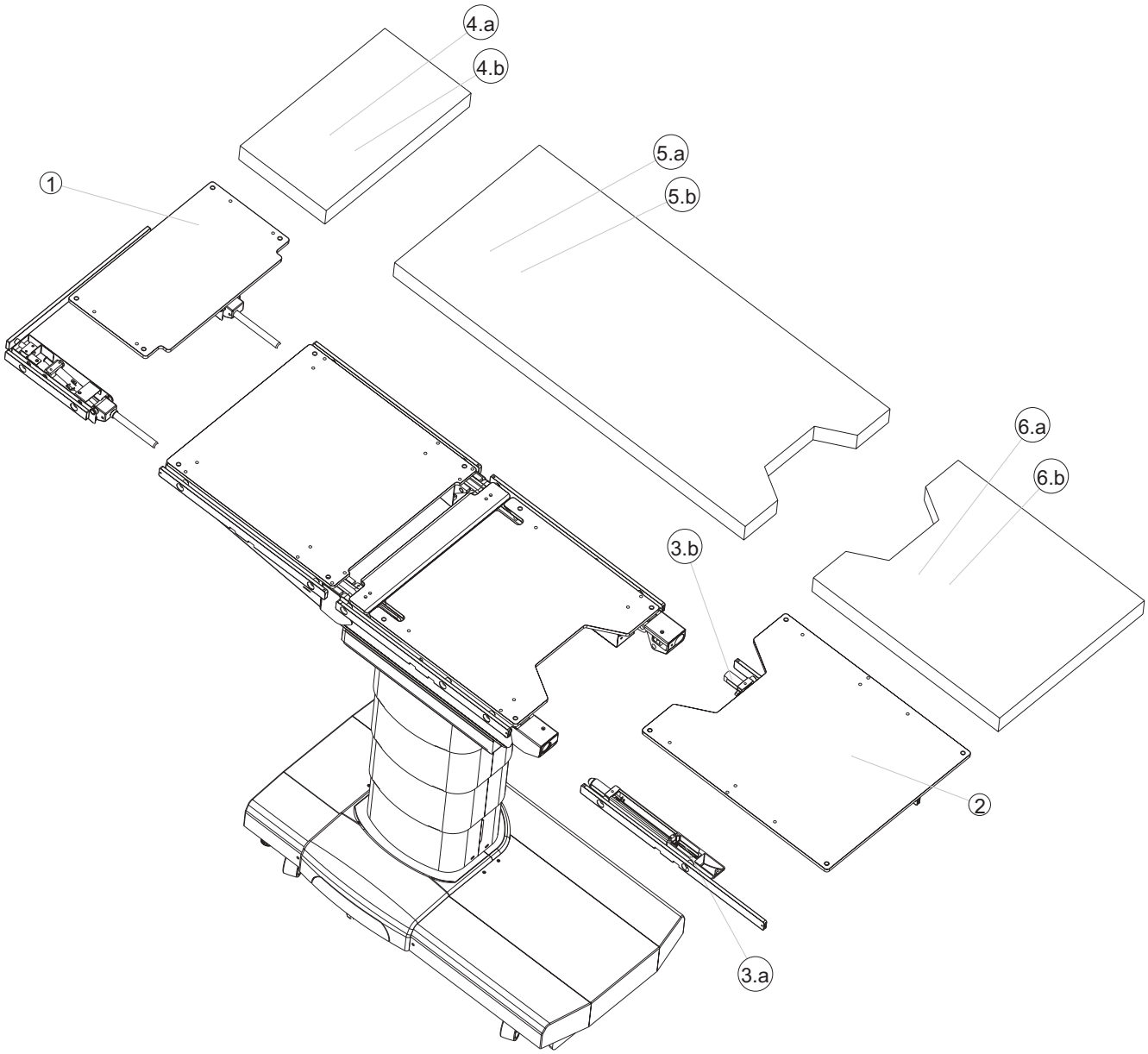


SEAT	PLANCHE/DRAWING/LAMINA **4**	
	FHSurgical	
	Modif :	
	Modif :	

CMAX NTR - 01B

PARTS LIST 1 **DRAWING 5** **HEAD & LEG SECTION**

Item	Part number	Description	Qty
1	**3 422 80 555**	**Head section, top plate**	**1**
	5 422 00 067	Top plate	1
	6 009 90 023	Screw M6X20	4
2	**3 422 70 555**	**Leg support, top plate**	**1**
	5 422 00 063	Top plate	1
	6 009 90 023	Screw M6X20	10
3.a	**3 422 71 555**	**Leg support, right locking device**	**1**
	5 422 00 144	Right locking shaft	1
	5 422 00 146	End stop washer	1
	6 030 00 416	Pin D4X16	1
	5 422 00 147	Right spring	1
	5 422 00 149	Handle	1
	6 005 30 410	Screw CHc M4X10	1
3.b	**3 422 72 555**	**Leg support, left locking device**	**1**
	5 422 00 145	Left locking shaft	1
	5 422 00 146	End stop washer	1
	6 030 00 416	Pin D4X16	1
	5 422 00 148	Left spring	1
	5 422 00 149	Handle	1
	6 005 30 410	Screw CHc M4X10	1
4.a	**5 422 00 241**	**2" leg plate fusion pad**	**1**
4-1.b	**5 422 00 244**	**3" leg plate fusion pad**	**1**
5.a	**5 422 00 240**	**2" top fusion pad**	**1**
5-1.b	**5 422 00 243**	**3" top fusion pad**	**1**
6.a	**5 422 00 239**	**2" headrest fusion pad**	**1**
6-1.b	**5 422 00 242**	**2" headrest fusion pad**	**1**
4/5/6.a	**5 422 00 816**	**2" table top fusion pad**	**1**
4-1/5-1/6-1.b	**5 422 00 817**	**3" table top fusion pad**	**1**
	3 400 90 555	**Screws set**	**1**
	6 004 11 035	Rail screw	1
	6 009 90 023	Top plate screw	20
	6 009 90 070	Base cover screw	20
	6 004 10 408	Locking device cover screw	10
	3 422 91 555	**Hydraulic screws set**	**1**
	6 051 30 008	Hydraulic screw, single way	10
	6 051 30 009	Hydraulic screw, dual way	10
	6 279 00 020	Sealing washer	50
	5 422 00 355	Small hydraulic screw, single way	10
	5 422 22 356	Small sealing washer	20
	3 422 92 555	**Plastic handle**	**1**
	6 004 10 408	Plastic handle set	10
	3 422 18 998	**Oil can 2L / 0,53 gallon**	**1**
	5 720 72 999	**Diagnostic software E-serve**	**1**
		1 to 10	1
		11 to 50	1
		51 to 100	1



HEAD & LEG SECTION	PLANCHE/DRAWING/LAMINA **5**	
	FHSurgical	
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	Modif :	

CMAX NTR - 01B

Specific operations

Date	Nature	Company name	Technician name	Signature

1 *year*

Service date : *Company name :*

Technician name : *Signature :*

Comments after the service, nature of repairs made and parts changed:

2 *years*

Service date : *Company name :*

Technician name : *Signature :*

Comments after the service, nature of repairs made and parts changed:

3 *years*

Service date : *Company name :*

Technician name : *Signature :*

Comments after the service, nature of repairs made and parts changed:

4 *years*

Service date : *Company name :*

Technician name : *Signature :*

Comments after the service, nature of repairs made and parts changed:

5 *years*

Service date : *Company name :*

Technician name : *Signature :*

Comments after the service, nature of repairs made and parts changed:

6 *years*

Service date : *Company name :*

Technician name : *Signature :*

Comments after the service, nature of repairs made and parts changed:

7 *years*

Service date : *Company name :*

Technician name : *Signature :*

Comments after the service, nature of repairs made and parts changed:

8 *years*

Service date : *Company name :*

Technician name : *Signature :*

Comments after the service, nature of repairs made and parts changed:

9 *years*

Service date :

Company name :

Technician name :

Signature :

Comments after the service, nature of repairs made and parts changed:

10 *years*

Service date :

Company name :

Technician name :

Signature :

Comments after the service, nature of repairs made and parts changed:

Contact FHSurgical to obtain a new service handbook and a new periodic maintenance document

Our network is at your disposal if you have any queries.

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